Hospital Progress

Vol. X MARCH, 1929 No. 3

I. Introducing the First Building Number

OUR BUILDING NUMBER

C. B. M.

WE have made a very serious effort to produce a building number of this March issue, which will be effective and inspiring to all hospital people who earnestly read and study it.

Many minds have planned the number. Much energy has gone into the making of this first Annual Building Number. A strong effort has been made to secure writers of ability and of authority in the topics on which they have been asked to write. We believe, therefore, that it is perfectly proper for us to urge a close and questioning study of the articles in this issue of HOSPITAL PROGRESS.

Never before has there been so much money and activity spent, in the construction of new hospitals or new units of old hospitals. This is in response, of course, to a demand on the part of the public. The public, therefore, is coming to understand and appreciate the value and even necessity of hospital care when one becomes sick.

This March issue on building is, as a consequence, timely, and should be of exceeding interest to all who have built hospitals and to those who may be given the burden and the responsibility for hospital construction in the future.

All the writers who have favored us with their views and conclusions in regard to hospital planning, arranging, and building are professionals of known ability and skill. There are many more such in our country whom we would have been glad to have as contributors to this effort on the part of the Catholic Hospital Association to contribute something to a developing science.

We wish to call upon the hospital people—superintendents, supervisors, doctors, nurses, yes, even professional architects, structural engineers, and builders to read and study this current number of HOSPITAL PROGRESS, and to favor us with comments and criticisms which may help to further knowledge and sound conclusions in this rapidly advancing science and art of hospital construction.

We appeal especially to the experienced Sister builders of hospitals to let us have their comments, their strictures, their best-thought-out conviction on planning and building of hospital units and departments. We hope, therefore, in a number that will appear soon to let all know what is thought of the views and theories or practices presented in this number. Names will be withheld in the hope of making more free and unrestrained whatever may be written to us. Address Editorial Director, C. B. Moulinier, S.J., 612 North Michigan Ave., Chicago, Ill.

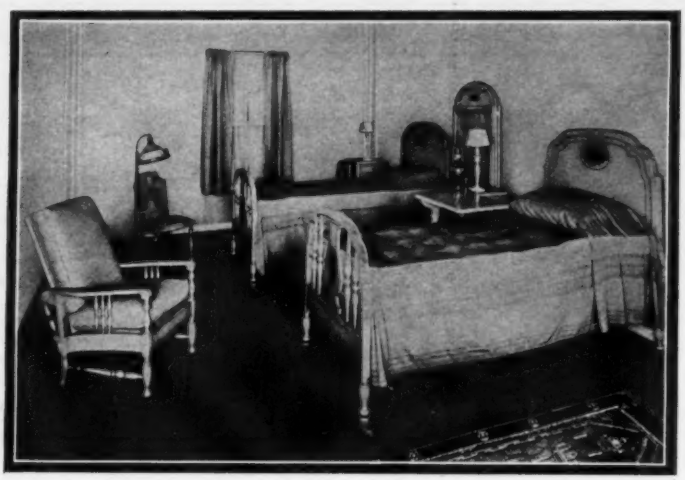
BUILDING CONSIDERATIONS

Sisters of Charity of the Incarnate Word, Alamo Heights, San Antonio, Texas

TOPICS on hospital building programs have been so intelligently and comprehensively treated in various creditable magazines throughout the country, especially in articles that have appeared from time to time in the widely circulated HOSPITAL PROGRESS that there remains little or nothing to be added.

However, in approaching a hospital building program —a formidable and dreaded approach at times—there arises in the mind of the writer not only the pleasure of an envisioned building complete in all its appointments, spacious, airy, radiant in its atmosphere of cleanliness and cheery sunshine, but likewise the specter of a very serious difficulty in the form of a lack of funds. This, in the experience of the writer, is the greatest difficulty of the entire building proposition, and one that casts a deep shadow on the otherwise beautiful program. But granting that the money has to be procured and the confidence of the creditor kept alive, the next move should evidently be toward securing the aid of an architect who should give the building committee all assistance possible in selecting a proper location with a view to the future operation and extension of the hospital. The architect being trained in his profession will see many advantages of one site over another and will be able to give valuable suggestions as to the style of architecture best suited to the environments of a particular locality.

The nature of a hospital suggests the necessity of quiet for the inmates. A too close proximity to railroads, street-car lines, and places of public assembly should be avoided. An abundance of sunlight is of vital importance in a hospital. Clean air, free from dust, smoke, and disagreeable odors can be secured by avoiding much-traveled highways, railroads, and manufacturing neighborhoods. It should also be reasonably accessible to patients, visitors, and the personnel of the hospital. A hospital sit-



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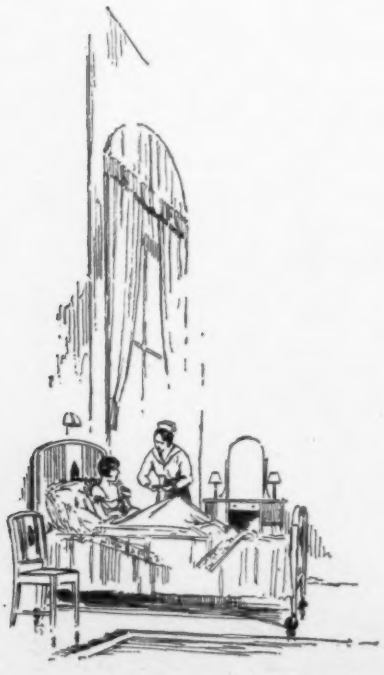

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uated at too great a distance from town or city, proves to be undesirable as experience has shown. Even the advantage of a country location with its quiet surroundings and its scenic attractions, fail, generally, to compensate for the inconvenience to patients, physicians, and others connected with the hospital.

The orientation of a hospital also requires careful consideration. A suitable outlook contributes in no small degree to hastening the convalescence of the patient. Such an outlook should be restful and attractive; hence the building should be so placed that the rooms and verandas of the sick do not face crowded thoroughfares or commercial sections.

Following the selection of the hospital site, the drawing up of the building plan seems to be of the greatest importance. If mistakes and omissions are to be avoided, the plan must necessarily be studied with the utmost care, and sufficient time allowed the architect properly to develop the ideas and instructions submitted. Opportunity should also be given him to present his own suggestions. To rush a building plan to completion without having minutely examined into all details would ultimately result in dissatisfaction and prove very costly, since in such a case the omission of some essentials would be quite possible and be a cause of future regret.

A desirable site having been selected, and the building plan—embodying a view to future additions and expansions—having been carefully designed, it might not be amiss to provide means for constant supervision during the building process in order to insure the faithful execution of plans and specifications. The additional time and energy thus expended has been found, in particular instances, to be amply repaid by the resultant satisfaction derived from a well-constructed and thoroughly finished hospital building.

EFFICIENCY, COMFORT, AND COST

Sisters, Poor Handmaids of Jesus Christ

MUCH has been written by very able writers on the hospital building, its needs and advantages. We are allowing ourselves to make a few suggestions, which our experience leads us to believe, may be of some value to those interested in this subject.

The three important needs we wish to stress are: Efficiency, the comfort of the patient, the necessary financial means to operate an efficient and a comfortable hospital. This latter need is unfortunately a very important one, especially to those hospitals which have not the advantage of large endowments and outside financial support; i. e., to hospitals which, in a great measure, must support themselves.

All departments must be manned by a trained and adequate personnel. Much can be done by the architect in planning a hospital toward a maximum efficiency with a minimum number of personnel. In our hospitals, economy in this respect, is of great importance. For instance: long, straight corridors, wide and light, so that they can be viewed by one nurse in charge throughout their entire length, thus leaving a greater number of nurses available for the care of patients; proper correlation of the various departments; arrangement for the proper handling of foodstuffs, so that meals can be served to the patient, warm and palatable; all such provisions assist in reducing the maintenance cost and operating expenses, and, at the same time, increase the general efficiency of the hospital.

Here we would suggest that much attention be given to the decoration of rooms, the color of walls, neat and homelike draperies, and harmonizing colored furniture. The relative placing of ceiling lights, bracket lights, or base plugs, should be planned to cause the least disturbance to the patients. The reading lamp is to be arranged to enable the patient to read comfortably without detriment to the eyes. Probably the most important item of all, is that of the beds for the sick, which should be the most comfortable obtainable. This is especially important, since in our day, severe criticism is passed of hospital beds being less comfortable than patients' beds in their own homes.

In the important matter of finance, a large proportion of persons, even those who appear to be reasonably well to do, find themselves handicapped, when they require the services of a hospital. Comparatively few are able to pay more than the actual cost of their keep, but to meet the demand of these few, we suggest that de luxe rooms be provided, furnished and equipped with special service equal to that obtainable in the very best and highest-priced hotels, providing even those unnecessary things which their tastes demand. These patients, not only able, but willing to pay for this special service, will materially assist in financing a reasonable profit for the hospital. Willing charitable patients of this type, are not likely to object to a less-able patient receiving a share of their affluence.

SOME IMPORTANT FEATURES

St. Elizabeth Hospital, Lafayette, Ind.

A FEATURE worthy of consideration in the construction of a new hospital or in the modernization of one of our present hospitals is the aspect of the entrance. It should be so constructed as to give a "homey" appearance. A comfortable and cheerful admitting room should meet the eye of the patient as he enters; here he should be allowed a few moments rest and not hurried immediately to his respective room or ward. The information desk should be located in a recess in this entrance or admitting room.

We suggest that doctors have their own separate entrance; this should give them access to registration, lockers, consulting room, and telephone accommodations.

The general or business office, bookkeeping office, and switchboard room should be readily accessible from the admitting room, but not open to public view. Money changing and bill conversation at the front door do not "impress" favorably.

We suggest that ample provision be made for service rooms; among which should be dressing and utility rooms, sinkroom with built-in cupboards for cleansing articles and incinerator, etc.; all cupboards and cabinets should be made of steel and built in the wall for the purpose of neatness, cleanliness, and conservation of space. These rooms should be grouped and located, not in the midst of patients' rooms, but isolated on a side corridor.

Another important feature which constitutes a real problem in all hospitals is the elimination of noise. All ceilings, if possible, should be soundproofed, elevators and stairways should be isolated. The quietness of the hospital is one of the best means of impressing the patient that we have his comfort and welfare at heart; furthermore, quiet in a hospital gives it a special tone of culture.

The new kitchen in close connection with the diet kitchen should be built on the ground floor. This should be a separate unit with passageways leading to the hospital proper for the transferring of the heated food conveyers to the various dumb-waiters.

We have not attempted to express our thoughts on all departments in the hospital, but the few mentioned we think are the most important.

II. Professional Service for Hospital Building Projects

The Preliminary Survey

T. R. P.

TRAVELING on a train recently, a conversation was overheard between two business men. One, the representative of a large surgical supply house, asked the other, the manager of a successful drug company with retail stores in most of the large cities of one of the states, why his firm had not established their stores in one of the larger cities of the state.

The conversation developed the following facts. The drug company had made a careful study of the city in question to find out the possibilities. They had made an analysis of the type of the population of the town to determine the character of the people and their possibilities as customers. They had found out all about the drug stores already established; had determined the amount and kind of business they were doing; which stores would have to be bought out, and what prices would have to be paid; how far the new company's stores would come into competition with those remaining; and how many new stores could advantageously be established. All of the investigation so far had proved reasonably satisfactory except in one respect. The incoming company would be able to establish only three stores without encountering competition that would affect their business. To put in a fourth store meant competition with some of those already established, which made the success of the new venture doubtful. Transportation then became the deciding factor. The drug man stated that transportation to this particular town to supply only three stores, was wasteful for them, and while freighting for four could be done profitably, the competition would offset the advantage of larger consignments, so the project was abandoned.

Compare this careful analysis of the situation with the haphazard policy so often followed in building a new hospital or in enlarging an old one, even with men who have been successful in other business at the head of the organization. Very often, a hospital is built in a particular location because some wealthy subscriber wishes it to be put there. Often the influence of a prominent doctor determines the site, regardless of its convenience or suitability. Possibly it is that most expensive of all sites —one that is used because it is donated. Too often a community determines to build a hospital larger and more expensive than it needs, or perhaps one that it does not need at all, because civic pride will not allow it to be outdone by a rival town. Again, a hospital is often built in a town or neighborhood because one already established is successful—a factor that should decide the new organization to keep away from that particular locality.

The same contrast is to be found in the planning and construction of a business house and a hospital. The business house does not neglect a pleasing appearance both without and within. In fact the study of an appearance that will attract the public is very important. But, in business houses, there is also careful study of subsequent management. It must be efficient and economical, and the physical structure must be built with this object in view.

In the hospital the contrary is too often the case. An architect is employed who is able to design a beautiful building, and who can plan a good store or factory, but who knows nothing of the administrative problems of the hospital—except perhaps, the extremely superficial knowledge that he may have gained by visiting or by being a patient in one for a short time.

Hospital is a Business Proposition

To be successful, the hospital of today cannot be a haphazard proposition. It is as much a business organization as is the most complicated business. Whether it be a hospital operated by a private corporation for profit, a semicharity institution owned and operated by a church or by a fraternal society, or a tax-supported institution, it must be developed, planned, and managed according to modern business methods as they apply to hospitals, or it is doomed to failure.

In the development of the hospital organization from its inception to the completion of the building, many problems must enter which can be handled only by a thorough survey of the situation from all angles.

Study the Community to Be Served

One of the first things to be analyzed is the community to be served. The number of hospital beds required for any population has been estimated by many authorities, and the variation in results is expressive. Statistics show a variation between one bed to one hundred and fifty, and one to three hundred, but the average appears to be about one bed for two hundred of population. One factor that determines this variation is whether the community be urban or rural. The rural population is, on the whole, more healthy than the urban, but factors of city life have a still greater influence. The city dweller has become largely a flat dweller, so he must secure his care while sick in the same manner as he purchases his food — ready prepared. He has neither the room nor the facilities for proper care in his flat, so when sickness overtakes him he must go to the hospital.

NEW HAHNEMANN HOSPITAL
PHILADELPHIA, PA.
This new $2,000,000 hospital is a thoroughly modern example of the skyscraper hospital.

The type of population, whether urban or rural, must be the subject of a careful social survey. The wealthy can afford what they require in their own homes; or, if they go to a hospital, they can afford and demand the private room. The moderately well to do cannot afford to be sick at home if the illness is at all serious. It is equally true that they cannot have the luxury of the expensive private room if the future is not to be hopelessly mortgaged; so the hospital for a community of this class must be built without the luxuries which increase cost, yet with the facilities that are necessary to proper diagnosis and treatment. It is in this type of hospital that the greater care must be taken to plan so as to insure most economical administration.

The kind of illnesses which may afflict a community must be painstakingly and accurately determined. The industrial community has a large proportion of accidents, so its patients will be largely surgical. This will necessitate an increase over the average of operating rooms and surgical facilities generally. The same condition applies to the hospital built in a location adjacent to heavy travel where road accidents are frequent. Some regions have a known high incidence of respiratory troubles, and in these the medical side must be developed. Sex preponderance of the prospective patients must be estimated. A mining region will have a large proportion of male patients, whereas, a factory city employing a great number of women will require more beds for female patients. Again an analysis of sociological data is valuable.

Next, the extent or duration of illness must be estimated. Some illnesses are of much longer duration than others; and in communities where housing conditions are not good, convalescence must be better established before the patient is discharged. Here a study of the vital statistics of the community adds to the data secured by a sociological study; but all of this can well be supplemented by a study of the records of the doctors who practice in the community, since these will give very valuable information as to the type of illness to be expected.

The study of the number and type of beds required may be completed by determining the number of patients from the community who have been admitted to hospitals in neighboring communities, and what type of accommodation they used.

Finally, in this part of the survey it must be determined if the hospital does or does not require an outpatient department. A community with a large number of poor, ambulatory patients, and with no clinic already established, will find it a definite economy to establish such in the hospital; whereas, one in which the patient can very well afford to go to the doctors' offices, not only does it not need an outpatient department, but by establishing one, is doing the people a definite harm in that there is thereby a tendency to pauperize the community.

Make a Careful Selection of the Site

Having determined that a hospital is needed, and having determined the size and type required, the survey will then proceed in the same methodical and business-like manner, to the selection of the site.

Many factors enter into the selection of the site for the hospital, all of which have a definite bearing on the future success of the institution, and all of which are almost equally important.

Transportation

Transportation facilities must be carefully studied. Patients have to be transported to and from the hospital, patients' friends desire to visit them and, during convalescence, visitors who bring a cheerful atmosphere are often desirable as an aid to complete recovery, and finally, supplies must be transported in rather large quantities.

Patients are usually brought in by ambulance or by automobile, so good roads to the hospital must be already laid, or it must be in a district where the municipal government will be willing to build them. Good roads are not among the luxuries—they are among the necessities, since the difference between a smooth ride to the hospital and a jolting one over rough roads may be a strong determining factor in future recovery. What can be more detrimental, for example, to the patient who has been in a serious accident and is already suffering from shock, than ten or fifteen minutes of additional pain increased by transportation over a rough road.

Visitors are a second problem to be considered when studying transportation, if the hospital is to be successful. Patients will not, as a rule, go willingly to an institution to be isolated from their friends. If the hospital is built for a wealthy clientele, the good roads already mentioned have solved the problem, but if the patronage is from the moderately well off, or the poor, street car and bus service must be convenient.

The economy of transportation of supplies is not often given consideration, but it is just as important in the hospital as it is in any other business. To buy advantageously, it is often necessary to buy at a distance. Merchants must maintain delivery service and, while they may not definitely charge for delivery, it is included in prices quoted. They are naturally inclined to quote slightly better prices for a short haul. In some cities there are definite zone rates which are worthy of consideration.

Away from Smoke and Dust

Next must be considered smoke and dust in relation to the site. These are factors, not only in the health of the patient, but also in economy of administration. All patients are sensitive to smoke and dust and the odors which go with them, and some are very detrimentally affected. A smoky, dusty neighborhood requires a larger staff to keep the hospital clean—and it must be kept clean. Recently a new hospital in one of the western cities was visited. It had been opened less than a month, yet it was already dirty. It was situated close to a large railway yard. Another large hospital in the west requires four men constantly employed washing walls to keep them clean. These are, of course, only part of the extra force required for cleanliness.

Related to smoke and dust is noise, since they usually go together. Railways, whether long-distance steam lines or street cars, must be avoided. Congested city traffic

NEW ADDITION, ST. AGNES HOSPITAL
FOND DU LAC, WIS.
Schmidt, Garden, & Erikson, Architects, Chicago, Ill.

disturbs all patients, although it is most noticed by the patient who is accustomed to the comparative quiet of a suburban home. A hospital should be convenient to street cars but not directly on their route.

Influencing the decision regarding smoke, dust, and noise is the question of prevailing winds. It would be useless to select a location at a distance from mills and railway yards if the prevailing wind carried all the dirt and noise in the direction of the hospital. Prevailing winds also have a definite relation to the "breathing space" for the hospital. If the prevailing winds are constantly bringing fresh, pure air, the hospital does not require such large grounds, and the nearness of parks is not so important. The government furnishes information on this subject in its meteorlogical reports so it can easily be secured.

Hospital Should Not Be in a Business Zone

In many cities breathing space for hospitals is materially affected by mistaken zoning regulations. In these, the hospital is zoned in business areas under the antiquated idea that a hospital is a detriment to a neighborhood. This relic of former days condemns the hospital to locate in a region where it is or may be surrounded by high buildings which shut off both fresh air and light. The modern hospital is not, in any sense, detrimental to a residential neighborhood, and should be encouraged to build in such.

Common utilities must be available in the district selected. Sewers must be of a size that will always carry off not only the internal sewage, but also storm drainage. Gas must be within reach. Abundance of good water must be available and, if possible, at a pressure that will insure constant service to the highest part of the proposed building. If this pressure is not available the cost of construction is increased, in that special tanks or air-pressure apparatus must be installed. Electricity is an

absolute essential, even though the hospital proposes to generate its own current. If outside power is to be depended on entirely it is well, if possible, to have two sources.

Final Selection of Site

A study of these factors—transportation, smoke and dust, prevailing winds, and the availability of public utilities—has narrowed down the selection of the site to one or more localities, and in these the available sites will be studied. Exposure, drainage, room for expansion and soil formation are the factors to be considered.

The site should, if possible, slope to the south since experience has shown that such a site is warmer and pleasanter. It should be of a shape and location that will facilitate a maximum of southern exposure in the proposed building. Although this fact has always been known empirically, it is only recently that the reason has been found in modern knowledge of the effect of ultraviolet rays on health and disease. The site chosen must be large enough, not only to allow for ample grounds around the building as planned, but it must be remembered that if the proposed hospital is to be successful, as it is expected to be, it will expand; and if room for expansion is not provided at the beginning, it is likely to be very costly at a later date.

Before finally deciding on the site, the type of soil must be determined. A heavy structure is to be built—one that requires a solid foundation that will properly carry the load. Such a foundation can be laid only in the right type of soil. To neglect to secure absolutely accurate information in this matter may necessitate the outlay of many thousands of dollars in construction. If there is any doubt as to the character of the soil, if the presence of hardpan or rock at a reasonable depth is not positively known, the money spent in boring a few test holes is money well invested.

By following the principles of ordinary business methods, those responsible for building the hospital have now informed themselves as to the need of the community in order to plan a hospital that will meet those needs and thus be assured of success if properly constructed and administered. They have secured the best possible site for the future building. They should now continue to use the same business principles in the planning, construction, and administration. If this is done, the community will always point with pride to another successful achievement.

The Function of the Hospital Consultant in the Consummation of a Building Program

William H. Walsh, M.D., Chicago, Ill.

THERE was a time, not so many years ago, when the planning of a hopsital was looked upon as such a simple matter that little, if any, expert advice was considered essential, and any architect of ordinary ability could proceed with nothing more than a floor layout furnished by someone who had a fair knowledge of the then limited hospital routine.

The hospital of former days consisted of four walls—rarely more than three floors in height—and a roof, into which would be placed the wards, service rooms, heating plant, a place for simple routine laboratory tests, a morgue, kitchen, storerooms, and a few offices. To be sure, there had to be windows, doors, halls, and other essentials; but these differed very slightly, if at all, from the same details of any other building. Many heated arguments are recorded in those days on the question as to whether or not there should be basements, some contending that a basement was insanitary and that buildings for the sick should be elevated slightly from the ground so as to afford free ventilation beneath the ground floor. Some of the early hospitals of the then United States Marine Hospital Service, planned by government architects, are still in evidence, built upon brick piers elevated about three feet from the ground.

The shape of hospital buildings and their orientation seemed to be the only matters then deserving of extended discussion, some favoring long rows of separate pavilions, while others believed that regardless of the area available the institution should be one building with its wings radiating from the center. In practically all cases the large ward was the only patient unit considered, some advocating as many as 100 beds to one ward, while others felt that 50 or even less would be preferable. Sixty-bed wards were common and during the Spanish-American war, after the most careful deliberation by the leading lights of the day, the government constructed an immense hospital in Virginia for the reception of typhoid-fever cases whose wards housed 90 patients each. These tendencies in governmental hospitalization quite naturally affected civil practice and, doubtless, were responsible to a considerable degree for the perpetuation of the large ward until a very recent date.

Today, the hospital is rightly considered one of the most intricate and complicated problems in aesthetics, architecture, and engineering, so much so that the designing of hospitals has become a specialty and architects inexperienced in this particular line are obliged to associate themselves with specialists in order that there shall be no glaring errors in structural or mechanical details.

Special Considerations Affecting Plans

But before a hospital can be planned intelligently there must be considered many details of administration and technical procedure, such as: The extent and methods of scientific investigation and research con-

templated; the nature and clinical classification of the prospective patients; whether or not there is to be an outpatient department or a diagnostic clinic; the manner in which patients shall be received and discharged; the division of professional services and their relation to each other; the system of nursing to be adopted; consideration of isolation facilities; the number, capacity and dimensions of rooms and wards; the method by which food is to be served. These and many more vital problems must be carefully studied and their solutions determined before a line can be drawn, intelligently, by an architect.

The planning and construction of a hospital involves three fundamental factors; viz., function, form, and engineering—and of the three, function must take precedence, since the magnificence of the structure and the completeness of the plant are of no avail, if, because of faulty planning, it cannot be made to operate efficiently and economically. The hospital of the present day, therefore, is planned from "within, out," as contrasted with a purely architectural conception in which internal function does not so vitally affect the form of the structure, and in no other line of endeavor is the art, science, aesthetics, mechanics, and the constructive imagination of the architect so heavily taxed. The identical principles applying to the planning of a newspaper building, a school, a mill, an auditorium, a theater, or any other structure intended for highly specialized use, are equally applicable to hospitals, and the accurate designing of all such structures requires, in addition to the architect, the services of technical advisers possessed of vast practical experience in the intricate details of operation.

Vitally important considerations in the planning of a hospital have to do with the technique of professional service, such as the layout of the operating suite, obstetrical department, laboratories, nurses' service rooms, sterilizing rooms, metabolism, X-ray and physical-therapy departments, each of which has to be planned and coordinated in such manner as to meet the highly specialized technical requirements of the particular institution under consideration. It is seldom, indeed, that two institutions are identical with respect to these requirements, so that the plans of a hospital which may be wholly satisfactory for one locality may be totally unsuited to another locality with different medical men and other local varients.

PERSPECTIVE, MONTEFIORE HOSPITAL
PITTSBURGH, PA.
Schmidt, Garden, & Erikson, Architects, Chicago, Ill.

The division of space must be carefully determined in advance so that the number and size of private rooms, semiprivate rooms, and wards can be estimated accurately. To do this, requires a study of local social and industrial conditions which, when estimated accurately, will permit the formulation of an equitable ratio. Then, too, with the division of space into various economic classifications, it becomes necessary to consider the customs and habits of each classification so as to provide adequately the necessary bathing facilities, toilets, nurses' stations, solaria, roof garden, flower rooms, and endless other minor details concerned with comfort de-

ST. ELIZABETH HOSPITAL, ELIZABETH, N. J.
Crow, Lewis, & Wick, Architects, New York City.

manded by those who are able and willing to meet the added expense.

Technique Built into Structure

The proper care and nursing technique of communicable diseases, children, maternity cases, and many special diseases must be thoroughly understood in order that the technique shall be built into the structure, thereby eliminating the hazards inherent in a building which places too much dependence upon the human element.

If the architect is charged with the responsibility of drawing plans without the aid of a hospital expert qualified to work out the essential information indicated, he is obliged either to work out these technical problems himself, or to confer with local doctors whose ideas about these subjects may, or may not, be sound. Different professional groups and individual specialists have fairly accurate ideas as to what they would like to have in their particular departments, but each is likely to overemphasize the importance of his department in relation to the whole. Then, too, few professional men have the ability to read blue prints accurately; they have less knowledge of the value of space and the economic factors involved in the construction of a hospital; they do not consider, and sometimes are indifferent to the proper relations which each unit should bear to the other from the standpoint of operation. Thus it happens that when a hospital is completed by an architect who depends upon a group of physicians for instruction on his layout, the result is too often a monstrosity, difficult to operate and costly from the standpoint of maintenance.

Relations with Equipment Firms

Occasionally the various firms engaged in manufacturing hospital equipment are asked to submit floor plans for the layout of the particular part of the hospital in which they are interested. That these firms have excellent ideas of the planning of those units into which their products go, acquired through their experience with many hospitals, cannot be questioned, but there are two forceful objections to such procedure. First, these firms are in business primarily to sell goods, not to draw plans, and so, when they give of their time and effort they can hardly be blamed if, in their plans, a place is found for everything they sell. The second objection to securing floor plans of various units from different sources is that no one unit can be drawn up intelligently without an exact knowledge of the layout and location of every other unit. Thus, the perfect articulation and coordination of the many units is vitally important and can be successfully accomplished only by one who is intimately acquainted with the manner in which all departments of a hospital function and who can visualize them all in composite form.

It is unwise to incur obligations to dealers or manufacturers of equipment for the reason that such favors are apt to prove embarrassing when final decisions are to be made upon the choice of equipment, whose selection should be made upon the quality, price, and suitability of the items, rather than upon the ability of a firm to furnish elaborate plans.

The logical procedure in planning a hospital contemplates the drawing up of specifications for built-in equipment and such apparatus as requires water, steam, gas, air, or electricity at the same time as the floor plans are being drawn, and, when bids can be let for such apparatus before final plans are completed, the highly specialized engineering and mechanical knowledge of the manufacturers can and should be sought and fully utilized.

Aesthetic Considerations

Since it has been so well established that there is an intimate relation between discordant aesthetic conditions in color, odor, line, and form and the physiological and psychological reaction of the patient, it becomes the duty of the architect to eliminate, as far as is practicable, those ugly and disturbing surroundings so frequently encountered in hospitals, and to add, by artistic handling, such elements of color and beauty as are pleasing to the senses. In these undertakings, the aid of the hospital consultant is invaluable and where a free hand is permitted the interiors are made cheerful, disturbing contrasts are eliminated, and the hospital, as a whole, is made to produce a soothing and agreeable reaction.

Discussing this subject some years ago, one of the most distinguished architects in America said, "The Aesculapian temples of healing were shrines of beauty. Should we then consider the modern hospital as nothing more than a huge shelter provided for the surgeon's, doctor's, and nurse's work, as an aseptic workshop furnished with power and machinery, the latest tools, and the most perfect equipment and scientific aids to research and clinical efficiency, merely a complex of conveniences and apparatus? Or can we consider it not merely a great mechanism, but a silent agent in the art of healing? Am I wrong in thinking that, after all, the most perfect hospital is the one which most nearly satisfies the requirements of that master of all physicians, Dame Nature, and that diagnosis, operation, treatment, research, are all but a seeking to find the way of least resistance through which Nature shall work? And if this is so, can we afford to neglect the least helpful thing even though we believe others more important? Can we yet say through which door of the bodily senses this healing spirit is most apt to come and go? Above all, should we neglect the sense of sight? Or is it mere poetic license that calls the eye 'the window of the soul,' thus rating vision, psychically, as our master sense? Is it right that the sense of beauty should receive full communion in God's Cathedral of Notre Dame and a block away be cast out like some dreaded heretic from the Hotel Dieu?"[1]

Role of the Superintendent

I would not minimize the assistance that may be obtained by both the architect and the consultant from the hospital superintendent and the administrative staff; indeed, it must be admitted that some of the best hospitals in existence today were planned in cooperation with these faithful and able officials, not the least of which may be mentioned the Sisters of the various Catholic Orders who, with no other outside technical aid,

[1]Grosvenor Atterbury, F.A.I.A.—Transactions American Hospital Association, Vol. XVIII, 1916.

established the first hospitals on the American continent. But the superintendent competent to handle such problems today is usually so deeply engrossed in the administrative and economic problems of the institution that little time remains for the intensive study incidental to the shaping of a complicated building program. In all cases, however, the wise consultant will work in the closest cooperation and harmony with the administrative officers and profit by the knowledge that may thus be gained of the special problems of that particular institution.

Limitations of the Architect

After many years of hospital experience and more or less continuous contact with hospital building projects in every part of this continent, I am committed to the belief, shared by a goodly number of the leading hospital architects themselves, that no architect, however experienced in this type of architecture, can successfully design a hospital unaided by expert professional assistance. It cannot be denied that the designing of a satisfactory hospital necessitates the acquisition of intimate knowledge of technical procedures and administrative details of a highly specialized nature which cannot be acquired by an architect. The architect is and should be primarily concerned with "form" in the planning of structures intended for technical use and can hardly be expected to master the intricate functional phases of a hospital which alone constitute a lifetime study. If the architect is wise, he will voluntarily seek the services of one who has had professional training, years of experience in the operation of various kinds of hospitals, and who is, therefore, conversant with the many different methods of technical procedure utilized by the various divergent schools of practice.

Limitations of the Consultant

It is hoped that nothing that has been said in this paper can be interpreted to discount the importance of the architect, or in the slightest degree be construed as advocating interference with his prerogatives. The consultant is not and should not pretend to be versed in architecture, and a very definite understanding of his own limitations in this respect is essential to harmonious cooperation. It must be conceded that the generic function of the architect is the proper housing of the human race—in sickness as well as in health—and although the object of these remarks is to stress the need of the specialized aid of a consultant in hospital planning, it is equally desired to sound a warning to those whose smattering knowledge of line drawings of floor plans leads them to a mistaken conception of their own importance in structural and mechanical details.

Qualifications of the Hospital Consultant

From a perusal of the foregoing it is apparent that one who assumes the responsibility of designing the layout of a hospital must necessarily possess rare qualifications. Since the value of the consultant's advice hinges upon his knowledge of the details of administration, the methods of conducting all of the complex procedures within the hospital and the intuition to visualize programs and policies affecting the various fields of contact of the hospital, it is evident that the first fundamental requirement is that he shall have had extensive, and preferably varied, independent hospital administrative experience. If he has a sound medical education as a background, he is the more readily able to understand the objectives of scientific medical practice and thus, in his relations with the professional staff, he can with facility talk and comprehend the language of those for whose complex work the institution is designed. In addition to medical training, it is of advantage if he is also in possession of technical knowledge of the subjects of sanitation, hygiene, vital statistics, the theory and practice of nursing, sociology, domestic science, accounting, and law in its application to hospitals.

In order that he may be most helpful to the architect, it is desirable and necessary that the consultant be conversant with the general principles of hospital planning, building construction, heating, lighting, and ventilation, and that he possess the ability to express graphically his ideas on these subjects in a manner intelligible to the architect.

The consultant should be skillful in analyzing community hospital needs, and in devising ways to meet them which are socially sound and economically practical. Finally, success as a technical adviser on the planning of hospitals depends, in a large measure, upon the maintenance of constant contact with hospital administrative problems either as an active administrator or by the conduct of frequent institutional surveys, thereby keeping constantly abreast of the evolutionary changes in method and practice so characteristic of scientific progress.

Briefly summarized, the role of the hospital consultant in the planning of hospitals may be stated as follows:

1. In new projects where a corporation is to be formed, a site selected, money raised, and an analysis made of the community needs, a survey is conducted and a report submitted in which suggestions and recommendations covering these matters are fully set forth.

2. The most important function of the consultant is that of sitting in with the architect and owners on the preliminary planning, aiding in the decision as to the nature and cost of materials affecting the technique of the institution, working out a plan for the administration of the hospital, and considering innumerable other details which should be determined definitely before final plans are drawn. If the consultant knows his business, he will succeed in eliminating a lot of fads, fancies, and unnecessary frills which are often proposed, adding greatly to the cost of construction, increasing the cost of operation, and, decreasing the possibility of proper coordination of services when the hospital is completed.

3. Simultaneously with the drawing of plans, the architect and the consultant working in close cooperation, should prepare the specifications, in which the administrative experience of the consultant will prove in-

valuable. The height and width of windows and doors, ventilation, illumination, flooring, color scheme, special plumbing requirements, waterproofing, heating distribution, and the numberless other details which become permanently fixed in the specifications are matters requiring the aid and advice of the consultant and should never be finally settled without his approval.

4. When the final plans and specifications drawn up by the architect and consultant have been approved by the owners, all contracts signed, and actual building is commenced, the consultant maintains close contact with the architects and builders throughout the entire period of construction. An experienced consultant whose professional career has been spent in both administering and planning hospitals is able to advise the architects upon many technical matters affecting professional service about which they cannot possibly be familiar, and thereby expensive last-minute changes, which are very costly, are avoided.

5. The consultant should be prepared to assist in formulating a constitution and by-laws for the corporation, the rules and regulations governing the conduct of the hospital and the entire personnel, and such rules and regulations should be such as to warrant the approval of those national organizations which have formulated and indorsed standards for the conduct of hospitals.

6. When so desired, assistance should be rendered in the selection of the entire personnel of the hospital and also in the organization of the professional staff. If a school for nurses is contemplated, the details may be worked out in accordance with the state laws upon that subject.

7. The best results will ensue (if a competent superintendent is not already on the job) when the consultant is charged with the responsibility for specifying, selecting, and purchasing the whole technical equipment and furnishings of the hospital, and the supervision of installation. Needless to say, it is a distinct advantage to a hospital to command the services of someone who is acquainted with not only the quality and prices of the items to be purchased, but who also knows the exact use of each item, its proper distribution, and the quantity necessary for efficient service. As in the planning, so in the equipment of a hospital; the competent consultant saves the owners many times the amount of his fee. A partial list of furnishings and equipment to be specified, selected, purchased, and installed follows, many items of which should be chosen while the architect's plans are being drawn and in collaboration with him: Furnishings and equipment for the laboratories, physical-therapy department, operating rooms, X-ray department, delivery rooms, sterilizing room, drugroom, nursing school, private and semiprivate rooms, wards, and offices; signal system; special lighting equipment and fixtures; steel lockers and built-in cabinets; bedding, shades, draperies, rugs, and textiles; kitchen and commissary equipment; china, glassware, silverware; rubber goods and sundries; janitor's supplies; and special machinery such as laundry equipment, workshop appliances, incinerators, etc.

Conclusion

In conclusion, I would like to suggest that the interests and aims of the architect and consultant are identical. I would plead for a closer copartnership between them to the end that, when completed, the modern hospital shall be functionally operable in an economic manner; equipped and furnished in accordance with the highest known standards; constructed at the lowest possible cost to produce the desired results; artistically designed with due consideration to the laudable aim of inspiring confidence and hope in the minds of its future guests; and, as a corollary to these, the consummation of a project which will combine the art and science of the master builder with the art and science of healing.

ST. CLOUD HOSPITAL, ST. CLOUD, MINN.
Schmidt, Garden, & Erikson, Architects, Chicago, Ill.

The Hospital Superintendent and the New Building

A Symposium

Administration Offices

Mother M. Concordia, St. Mary's Hospital, St. Louis, Mo.

THE administration office, as a rule, does not receive the attention it deserves in the hospital plans. Did you ever hear of hospital people going to their architect with an order to place great stress on the planning of this important part of the hospital? No, you never did, and the fact strongly indicates that in locating and planning our offices we have ignored the rights and interests of our patients. Since one of the corner stones of our success is the way we handle our patients, we should look to it that their convenience and comfort are always paramount. So, in our hospital building, we have begun to realize that disorder and waste are handicaps, and, in removing handicaps, we are creating beauty and service; of the latter we shall speak.

One should strive to plan the lobby of a hospital in a manner to admit plenty of natural light, as pleasing decoration needs the complement of sunlight to obtain the desired effect of restful welcome. The lobby should be spacious and should, as much as possible, be devoid of all hospital atmosphere. Money spent on the entrance to a hospital is never wasted. Since, as has always been said, first impressions count, if the incoming patient is given a genial and sympathetic reception and is conducted to a comfortable chair or couch, in a carefully decorated, furnished, and lighted reception room, how different his whole mental attitude will be toward the institution at the very start; confidence in the hospital is at once established.

The general admission and reception rooms should be as near the front entrance as possible, because, unless otherwise directed, patients will invariably enter at the front door. Both should be easy of access and well enough equipped to care for patients without delay. The exterior approach to the main entrance should be so laid out as to eliminate long runs or hazardous steps. If a considerable number of steps is necessary they should be arranged in several short runs with easy risers and ample amount of tread. A great expanse of steps is never inviting, and besides being tiring to the incoming patient or visitor they are a real source of danger in icy weather. For the latter reason, the ambulance entrance is also best located at the street level rather than in a hollow. It is always advisable to have a secondary entrance for the use of the doctors and nurses, from which shall be readily accessible, the staffroom, the office of the superintendent of nurses, and the other administration offices.

Information desks should be in the business office and should be in close proximity to the superintendent's and staff offices, as much of the information will have to do with the business affairs of the hospital. The marble-topped information counter is absent in many of the later-planned hospitals. It has been supplanted by a modest desk that occupies a strategic position but is of a design to harmonize with the other lobby furniture and is occupied by an information clerk or a hostess who may control the visitors by a card register and is in direct touch with the necessary departments by phone or signal system.

The telephone switchboard, although near to the administration offices, should be in a room by itself, well lighted and ventilated, for switchboard work is trying, and everything possible must be done to keep the workers alert, courteous, and free from distractions. It is

BUSINESS OFFICE AND LOBBY, ST. MARY'S HOSPITAL, ST. LOUIS, MO.

poor policy to assign to a switchboard operator other duties that must be performed simultaneously with her regular work. If the switchboard is placed in the main office, there is objection because of the fact that patients are prone to think the operators are within hearing and will know all business arrangements of a private nature transacted between them and the superintendent of the office. This is especially true of the neurological patient.

In planning the administrative offices, great care should be taken that emergency patients be considered. Every well-arranged hospital has an emergency unit or department. This department should consist of an emergency room proper. Here, a force should always be on duty to care for all emergencies that may arise. It should be large enough to provide for unhampered work in the emergency room and should be equipped with tables, stretchers, pulmotors, dressings, drugs, (such as antidotes for poisons, etc.), and all supplies needful in emergencies. There should be an adjoining room equipped with bath and shower appliances, where patients coming in off the streets may be bathed and cleansed if necessary before treatments are given. This department should also have a waiting room where the anxious relatives may remain while the injured dear one is being cared for. The entire emergency department should be in close proximity to the elevator and if possible, on the ground floor. Emergency patients should never be admitted through the main admission office, because of the depressing effect the sight of the injured may have upon the sick. The personnel of this department should be well-trained and willing workers. It is well to locate the emergency department in close proximity to the ambulance entrance, with signal and phone facilities in connection with the general admitting office at all times, so that as little time as possible is wasted, when minutes may mean the difference between life and death. All signal systems should be subjected to rigid periodic tests so that they will not fail you in the emergency.

The superintendent's and staff offices should be placed near the main or business office and should be easy of access. So many things that have to be referred to the superintendent or staff officers occur each day, that, to the writer's mind, it is absolutely necessary that the said offices be situated near the main or business office.

The cashier's counter and wicket, while easily accessible from the lobby, is better placed in an alcove, where any conversation carried on cannot be easily heard by those waiting in the lobby. Toilet facilities must not be overlooked when planning the rooms adjacent to the lobby. The elevators should not be far from the lobby, but so located that access is under proper control.

While, in the record department, work varies considerably in the different hospitals, the usual requirements are as follows: A waiting space near the admitting and staff rooms, wicket and counter, and a file room adjacent to the record room for contemporary files. The basement space below this department may be given over to record storage and reached by a stairway from the record room.

The administration department might be likened to the brain of the hospital and the various signal systems constitute its nervous system. Regardless of how well the food preparations and service may be functioning, how well trained the nurses, or how clever the surgeons, the hospital will never be more successful than its administration is efficient. The proper degree of efficiency can be obtained only through proper planning of the several units constituting the administration.

Central Utilities

Sister M. Rose, Mercy Hospital, Pittsburgh, Pa.

IN designing the central utilities of a hospital, certain definite ends must be sought, if these departments are to contribute their quotas to the successful functioning of the whole. These ends will determine to a considerable degree such factors as the location and the size of the utility as well as the general character of the equipment of each. Economy in construction is always a pressing consideration when building, but long ago it was decided that it is a wise economy that accords initial costs a place second to operating costs. Facility in operation, conservation of materials and effort in operating, and a satisfactory production form the triangle that tests the efficiency of our domestic and mechanical departments; hence, it would seem, these are the ends to be sought when drawing up the plan. A practical unity wherein accessories are systematically arranged and so related as to secure a maximum of production from a minimum of effort is a potent factor in the realization thereof. The elimination of noises and odors emanating from these utilities is a matter of economic consideration at the time of planning. These must be adjusted, soon or later, because of their reaction upon patients, the final consideration in all hospital activity. The best and cheapest time to provide for their elimination is when building. And finally, we must consider flexibility in construction, a point so vital to the future requirements of the plant.

Beginning with the kitchen as the nucleus of one unit, our object shall be to show a practical and systematic arrangement of accessories that will provide for the direct conveyance of the food from the receiving room to the consumer without double routing along the way. Locating the kitchen on the ground floor facilitates the receiving of the food supplies. To the rear of the kitchen, the accessories should be planned in some such order:

1. Receiving room equipped with scales, trucks, and service elevator for carrying stock supplies to the storeroom which may be located in the basement immediately below.

2. Opening into the receiving room, should be the several refrigerators for meat, fish, milk, eggs, fruit, and vegetables, all equipped with an efficient refrigerating

system. A meat shop should be an adjunct to the meat refrigerator.

3. The preparing room, equipped with all devices for expediting the work, has a place here, into which should open the immediate supply room, the bakeshop, and the equipment for making ice and ice cream. The incinerator and garbage receptacles should be conveniently near.

4. The size of the kitchen proper must be determined by the size of the hospital and the dimensions of all accessories should be in proportion. It should be spacious according to its needs with extra high ceilings. Large windows should be generously placed on at least two opposite sides to insure natural ventilation and ample sunlight. Dark, gloomy surroundings are depressing to the spirits of those who must constantly spend their time there. This reacts upon effort because, where there is no song in the heart, it usually follows that there is little activity in the muscle other than enforced; and the results of forced activity are distinctly deficient. Therefore, the plea is now made that all utilities be well lighted and well ventilated. Fans or some standard artificial ventilation should be provided for in the plans for the control of odors and excess heat. Cleanliness is the prime kitchen virtue. Hence floors, walls, and furnishings should be of materials that react favorably to soap and water. The size, quantity, and character of the equipment depend upon the size and type of hospital. Suffice it to say that since effective production in the kitchen has a direct influence on the status of the hospital, it follows that generous provision should be made for every kitchen, furnishings that will facilitate the work or enhance the character of the kitchen production.

5. The diet kitchen should form a part of the kitchen proper. There is a saving both in supplies and in service through such an arrangement.

6. Beyond the kitchen, yet opening into it, is the place for the central-service room. When the kitchen has provided a tempting menu, it has fulfilled its purpose; yet the successful issue of its production, to its ultimate end, depends upon the food reaching the individual patient hot and daintily served. Every superintendent has listened to too many complaints about trays not to be vitally interested in the layout and mechanical equipment of the central serving room. Steam-heated serving tables, closed carriers, organization of work and workers, and electric automatic elevators carrying food directly to the floor are among the requirements. Dish-washing machines, sinks with an abundance of hot and cold water care for the situation after the return of trays. Under the conditions just described, food should actually be served to the patient five minutes after leaving the distribution tables. This is the objective in the superintendent's mind when planning this unit.

7. It usually happens that a superintendent is so harassed by pecuniary matters and the demands of the other department that when the general storeroom is under consideration the most convenient and apparently satisfactory immediate settlement of the matter is to assign to its use such basement rooms as cannot be utilized for any other purpose.

The purpose of the general storeroom is to receive all excess of purchases over the daily demands, and to store and care properly for them until requisitioned. Size is the first consideration when planning this utility. It must be of such a size as to be no handicap to the hos-

EMERGENCY ROOM, ST. MARY'S HOSPITAL, ST. LOUIS, MO.

pital purchaser who would buy economically. There are seasons when the markets are most favorable for purchasing certain standard supplies; this is the time then to buy the year's supply. It is expensive to place repeated small orders for commodities that are always in demand, hence let the storeroom be large enough to meet the needs of the hospital at the time of planning and, one might add, provide that the principle of flexibility be applied here for future needs. Again, the storeroom should be located in proper relation to the receiving room, kitchen, and service elevators leading to all floors. The penalty of a poor location is loss of time and labor. The layout of the storeroom is the third vital consideration. An unsystematic arrangement of stores invariably creates a constant drain on resources, by causing overlapping of orders and tying up money that is needed for circulation. The floor area should be divided into space for shelving; space for bins, since there are groceries not adapted to shelving; and space for racks upon which commodities best handled in their containers can be stocked above the floor. The most economical storeroom is one large central storeroom supervised and operated by a full-time and competent storekeeper and his corps of helpers.

Elevators should be centrally located and adequate in number to handle the traffic. As service and silent operation are the ends to be obtained here, the elevator shafts should not be placed next to wards or rooms. The place for them is next to the outer walls, stairways, service rooms, or corridors. The shaft should be constructed with nonresonant materials while the framework upon which the elevator runs, as well as the motors, should be insulated. Separate food and service elevators have been referred to in place. In a well-regulated hospital, it should never occur that patients and visitors to the hospital should come in contact with the mechanical or the serious side of hospital life.

We now come to the hospital drugroom. The importance of this unit in the present-day institution needs no comment. Suffice it to recall that with the advancement of modern medicine the responbilities of the pharmacist have kept pace. To meet current demands, the pharmacy should consist of the pharmacy proper, a workroom, a storeroom, and a lobby. The last secures privacy and eliminates confusion and all disadvantages arising from the presence of externs. Again it might be well to stress the need for adequate space, proper ventilation, and a generous supply of sunlight. The drugroom should be a bright, cheerful room marked by cleanliness and silence.

Every hospital official knows how much time and labor is lost in departments through the absence of nurses and aids going back and forth to the drugroom. Therefore, the size and the location are essential considerations again. The main floor, preferably to the rear of the building and in close proximity to the dispensary, would seem to be the place for it. This location together with the installation of service lifts in the pharmacy should solve the question of lost time and labor. The rear has this advantage: it is more likely to be easier in this location to control odors and fumes arising from the preparation of the various chemicals and to prevent their dissemination through the hospital.

As fire hazards are a matter for consideration in the pharmacy, the storeroom should be located in a fireproof cellar immediately under the workroom, well lighted and well ventilated from outside. Here all excess of supplies may be stored together with alcohol, ether, oils, tinctures, and inflammable substances as benzine, etc. Pharmaceuticals should not be stored on the floor but should be elevated on racks or shelves.

The workroom should be generously equipped with hot and cold water, sinks, tables, refrigerator, a still for the production of distilled water, sterilizers, hot plates, electric mixers, and bins for all sizes of bottles. The present-day tendency is to provide space in the pharmacy where toilet articles and reading matter may be purchased by the patients.

The remaining utilities should be contained in buildings external to the hospital. It is not a good arrangement to house boiler and laundry together; they should be separate, if at all possible.

The purpose of the hospital laundry is an economical one. The yearly expenditure for hospital linens is an item of some consequence, hence the object in assuming responsibility for this unit is to provide laundry processes that will be easy on the clothes, thereby lengthening linen service and reducing annual replacement. The laundry should be hygienic in every sense of the term. It should be spacious, well lighted and well ventilated, provided with fans and equipped with every modern labor-saving machine possible. The laundry should not

PROPOSED COLUMBUS HOSPITAL, GREAT FALLS, MONT.

only sort, wash, iron, and count the linen, but the mending and replacement, the storing and issuing of it upon requisition should come under the laundry supervision and, consequently, be handled in the laundry building. This arrangement will correct the evils too prevalent in hospitals; namely, extravagence in use and misuse of linens as well as the loss of linen through theft which is not an uncommon source of loss.

The heating system and the refrigerating system may be provided for in the same building thereby conserving the number of employees. The mechanical planning of this unit is really difficult and, to a great extent, the superintendent must be guided by expert advisers—the architect and engineers.

High-pressure boilers are best. They furnish the high-pressure steam required for the laundry and are supplied with pressure-reducing valves for providing low-pressure steam radiators, sterilizing equipment, and kitchen. Steam control is best secured by vacuum pumps. The piping system should be covered with asbestos and supplied with separate traps. Auxiliary boiler equipment must be installed for emergency use and for times of cleaning. Automatic stokers are of economic value in the saving of fuel. The plan of the boiler house should provide for the receiving and handling of incoming coal and for the removal of ashes. Only standard and the best modern equipment should be installed because the efficiency of the heating directly affects the comfort of the patient.

Throughout, the problem has been to secure facility in operation, conservation of materials and labor in operating, and efficient production through providing ample room for each utility, locating it where its relation to the other departments would be most efficient in saving time and labor, and finally in choosing and arranging the equipment so as to secure the maximum possible production.

Planning the Floor Layout

T. R. P.

THE planning of the individual floor of the hospital so closely affects future smooth administration that it should be carefully supervised by one who is very familiar with the management of the individual unit. There would be fewer hospitals with inconveniently arranged floors if the architect had criticism and advice, not only from the superintendent, but also from a nurse who has shown ability as a floor supervisor.

The patients' accommodations and the floor utilities must be conveniently arranged if the patients are to be cared for with a minimum of labor on the part of the nurse—that is, if the patient is to have good care at a reasonable cost.

Modern construction of patients' accomodations is tending, more and more, to the small ward and the private room. It has been found that the cost of caring for patients in the one-, two-, three-, and four-bed rooms is very slightly greater than is the cost of caring for them in the large ward of 30 to 40 beds. Man's natural instinct for privacy when suffering may well be, and is being gratified. It is rare, in any of the newer hospitals, to find a room of more than six beds, and even in these the scissors, or some other form of screen, is being largely used to shut off the view of others when caring for the patient, or to screen his suffering from others.

Advantages of Running Water

Running water is now provided in all rooms, whether of one, two, three, or more beds. This is a recognition of the proved fact that cleanliness is not only next to godliness, but is the most successful method yet devised to prevent cross-infection among patients, and to protect the nurse. The basin with running hot and cold water is not a convenience for the patient, since he can make use of it only for a few days before leaving the hospital. It does enable the nurse, no matter how busy she may be, frequently to wash her hands, thus insuring cleanliness in caring for her patient. The only element of danger in having hot water in the patient's room is that the nurse may fill a hot-water bottle without properly testing the temperature.

Within the past few years, it has become recognized that abundance of toilets, with individual bedpans, urinals, etc., are not an unnecessary expense. Not only does the patient feel more comfortable knowing that no other person is using his bedpan, but the hospital is saved from odor and the nurse from labor. No longer, in visiting a hospital, does one see a nurse rushing down a corridor 50 or 60 feet long and leaving a trail of odor behind her, and culminating that odor by emptying the bedpan into a hopper. Now she quickly steps through a door to the adjoining toilet, turns the bedpan upside down in it and flushes the toilet. At most she has to brush out a comparatively clean bedpan with a proper brush, and periodically to sterilize it.

Attractive Rooms

The room itself is equally a modern development. The bare white wall is gone, with the hospital odor, and is replaced by the sanitary, but attractive, painted wall, finished in pleasing tones that have a very definite effect on the well-being of the patient. The bare window is now replaced by the prettily curtained one which makes the patient feel less like a prisoner and more like a normal human being. All this adds to the ability and to the desire to get well—that psychology that has such an important influence in the treatment of the sick.

The furniture, too, has changed. The bed must still be high and narrow or the nurse would be too greatly handicapped in caring for the patient. But it is a bed—a place to rest. The framework is so made that it can be adjusted for the comfort, or the safety, of the patient. The spring is firm to prevent sagging in the middle, but not hard

enough to be uncomfortable. The mattress is thick, firm, and smooth, often of the best hair. The pillows are soft, and of different sizes. The little "tuck in" pillow is often found. The sheets are white and spotless. Blankets are light but warm, and the tendency to give a touch of color by adding a colored spread or eiderdown is becoming more apparent. Dresser, bedside stand, and bedside table are no longer made of wood but of metal. Recently the lithographic art has been brought into this field, and the grains of some of the most beautiful woods are so perfectly reproduced on the metal that only close observation will detect that it is not real.

Utilities

The utilities of the floor must be so planned as to carry out the same idea—service with a minimum of effort—because that is the only type of satisfactory service. All service units must be central to the patients' accomodation, and if the floor is properly planned, no patient need be more than 60 to 70 feet from the center.

First is the supervisor's office—not a casual desk in a drafty corridor, but an office. She is an administrator, not a necessary evil. Her office must centralize and coordinate everything on the floor: desk so placed that she can see what is going on; annunciator in plain view so that she can see that a patient's call is answered promptly; chart rack elevated and to one side, or perhaps a separate desk, so that it is not necessary to assume a devotional attitude 100 to 200 times a day looking for a chart; a desk apart from the supervisor's at which other nurses may make their entries. The medicine cupboard, at least for opiates and poisins, should be in this office.

The floor linen and supply room may well open off the supervisor's office. If not, they should be very close. There is no greater wastage in a hospital than extravagance in linen, and the good supervisor is the one who will conserve her supply yet always have her patients clean. The supply room will contain the ordinary dressings and supplies used on the floor. It is convenient to have ordinary prescriptions kept here. Running water and a small sink also make for economy of labor.

The utility room is the one most often used. Here, in a central location, is the large sterilizer, the bedpan sterilizer if one is provided, the gas plate for fomentations, the chest for cracked ice to fill ice bags, the sink with running hot and cold water for washing utensils and for filling hot-water bottles, and the thousand other little things required constantly.

On the surgical floor there should be a dressing room with its trays, instrument sterilizer, and other surgical supplies. This may well be combined with the supply room. On the medical floor, all that is necessary is a small instrument sterilizer.

The janitor's closet must not be forgotten. It need not be large and it must not be too conspicuous. A hopper and water supply are necessary, shelves and cupboards for supplies, racks for brooms and mops, and enough floor space to allow pails to be out of the way.

Finally, the floor kitchen. The patient must be properly fed if he is to get well. The modern tendency to central service has developed the small floor kitchen. Because it is small it must be the more carefully planned. The dumb-waiter from the central kitchen opens into it; the refrigerator is either a local unit or is supplied from a central plant. The table is of a convenient height for the nurse to serve trays, the sink adjoins table and stove. The stove is a good gas one, ventilated, and large enough to boil a kettle and perhaps grill a steak, but not large enough to be in the way. Probably a modern electric toaster gives the patient toast that he can enjoy.

All of these things, if carefully planned, make a floor that can be efficiently administered, thus enabling the nurse to give her patient the care that he needs if he is to recover safely, quickly, and pleasantly.

Professional Service Units in Hospitals

M. T. MacEachern, M.D., Director of Hospital Activities, American College of Surgeons, Chicago, Ill.

General

HOSPITAL planning is recognized as a most intricate science, due to the number of administrative, service, and technical units which must be properly located and correlated. The solution of this problem can be based on one single principle, the getting of the service to the patient expeditiously, efficiently, and economically. In every hospital, this can be worked out if sufficient thought is given to the planning:

There is a more and more prevailing tendency to group the diagnostic and therapeutic facilities thus promoting efficiency and economy in administration and encouraging group work among the members of the medical staff. Frequently, in the more recently constructed hospitals, we find a complete floor devoted to diagnostic and therapeutic facilities such as operating rooms, clinical laboratory, X-ray, physical therapy, cardiography, and radium therapy. This is a most commendable feature not only advantageous from an administrative standpoint, but providing easy access for the doctors to these facilities and thus promoting better teamwork.

The Surgical Department

A complete surgical department, in addition to the patients' accommodations such as wards and rooms, will embrace the operating-room suite which, though varying in different institutions according to size and other characteristics, under ordinary circumstances should have the following units: (*a*) Anesthetic room or rooms; (*b*) operating room or rooms; (*c*) service rooms (utility, doctors' scrub-up, instrument cleaning, janitor's); (*d*) sterilizing room and workroom; (*e*) instrument room; (*f*) supervisor's office; (*g*) doctors' dressing room; (*h*) doctors' consultation room; (*i*) nurses' dressing room; (*j*) pathological tissue laboratory.

Anesthetic Room: It is always well to provide a special room in an operating suite where the patient can be received directly from the ward, given the necessary preliminary preparation for operation, and have the anesthetic commenced. The location of the anesthetic room should be close to the point of entry to the operating-room suite. A quiet room of this type tends to minimize the nervousness and anxiety of the patient and also affords an opportunity to properly prepare the patient before going into the operating room.

Operating Room: The number of operating rooms depends entirely on the bed capacity of the hospital. Generally speaking, provision should be made for the following types of rooms: (1) Major; (2) minor; (3) special, such as eye, ear, nose, and throat, urological, and fracture. It is advisable to place the urological and fracture rooms side by side with the necessary service facilities between and overhead wiring for the use of the X-ray. It is always desirable to place operating rooms in pairs with the service facilities between, including utensil and instrument sterilizers, sterile hot and cold running water, slop sink, cupboards for supplies, and doctors' scrub-up sink. The service unit between the two rooms can be divided into two sections, one for the utilities mentioned above and the other opening off the corridor for the doctors' scrub-up room. Inside corridors are always desirable where possible, as they permit of greater privacy and more convenient intercommunication. It is unnecessary to mention that provision should always be made for the essential plumbing, and the necessary electric outlets for lighting, power, etc.

Service Rooms: As mentioned above, these should embrace utilities, doctors' scrub-up, instrument cleaning, and janitor's room. Mention has already been made regarding the utilities and doctor's scrub-up room and where they should be placed. A room for cleaning instruments should be provided with special sink and equipment for this purpose. In this room, can be placed an incinerator where the ordinary refuse from the operating room can be burned. The janitor's room should be sufficiently large to contain the cleaning gear and have a slop sink and lavatory.

Sterilizing and Workroom: It is essential to provide a workroom for nurses where the surgical dressings and supplies can be prepared. Such a room should be spacious and provided with the necessary cupboards and tables with definite provision for the keeping separate of the sterile supplies. It is most convenient to have the dressing sterilizers in a part of this room cut off by a partition, with the sterilizers opening into the room to be convenient for loading and unloading.

Instrument Room: A small room very closely associated with the supervisor's office for the storage of instruments and special equipment such as bone drills, cauteries, and other expensive apparatus should be provided. If possible, it should be in close proximity to the instrument-cleaning room.

Supervisor's Office: A centrally located office for the supervisor is most desirable where she can have full supervision over the various activities of the department and ready contact with the doctors and personnel.

Doctors' Dressing Room: Ample provision should be made for the doctors' dressing room containing lockers, power, and toilet facilities.

Doctors' Consultation Room: Whenever practicable and possible a liberal-size consultation room should be provided where the doctors can meet and discuss their cases or other matters of social or professional interest. This should be in close proximity to the doctors' dressing room or may adjoin it.

Nurses' Dressing Room: It is essential to make proper provision for the nurses where they can change their uniforms and this room should have the necessary bath and lavatory facilities.

ENTRANCE, HOMEOPATHIC HOSPITAL
YONKERS, N. Y.
Crow, Lewis, & Wick, Architects, New York City.

Pathological Tissue Laboratory: It is exceedingly advantageous to have a small room in the operating-room suit where all specimens or tissues removed at operation can be sent for examination. This arrangement makes it convenient for the surgeon and pathologist to confer on such matters.

The above are the essential units in the operating-room suite. The placing of these units in their proper location is a matter of individual study in each institution varying in accordance with many factors or considerations.

Clinical Laboratory

Fortunately, in recent years there is a tendency to depart from the custom of placing the clinical laboratory in the basement. It is generally agreed that the clinical laboratory deserves as desirable a location as any other department in the hospital. Proper spacing, lighting, and accessibility to doctors and patients is desirable. Where practicable and possible, the necessary physical divisions should be made for the carrying on of the different branches of laboratory work, comprising the following: Chemical or clinical microscopy; bacteriology; serology; pathology; and blood chemistry. If these are grouped in one room, the necessary cupboards, tables, and working space for each should be provided and divided off as well

as possible. In addition to the above-mentioned divisions, an office for the director of the department and the waiting room for patients should also be provided. The animal room may be in close association with the laboratory or placed elsewhere in a desirable location. If the laboratory comprises a series of rooms, it is advantageous to have them intercommunicating.

X-ray Department

Like the clinical laboratory, the X-ray department is no longer relegated to the basement, but more attention is given to its proper location and planning. The location should be accessible to doctors and patients. Many hospitals find it advantageous to place the X-ray department in close proximity to the operating-room suite in order to promote better cooperation between the clinician and the radiologist as well as to facilitate the examination of the various types of cases not readily or safely transportable.

It is extremely essential that every means be taken to guard against the dangers which might arise from faulty installation or incompetent operation of the X-ray department. To this end, hospitals are advised to acquaint themselves with the recommendations of the safety committee of the American Roentgen Ray Society for their proper protection. Observation of these regulations will tend to prevent accidents.

The department should have the necessary rooms or divisions required for the comfort of the patient and the expedition of the work. These generally embrace the following: (*a*) Office; (*b*) waiting room; (*c*) viewing room; (*d*) radiology; (*e*) fluoroscopy; (*f*) X-ray therapy. Hospitals planning X-ray departments are advised to make a careful study of the problem and seek expert advice on plans which will insure the essential physical requirements and arrangement of the different units or services.

It is found from study of a large number of hospitals that the minimum floor space required is approximately as follows: (*a*) Hospitals 50 to 100 beds, a minimum of 400 square feet; (*b*) hospitals 100 to 150 beds, a minimum of 600 square feet; (*c*) hospitals of 150 beds and over, a minimum of 1,200 to 3,000 square feet.

Physical Therapy

A complete physical-therapy department embraces the following units: Massage, hydrotherapy, electrotherapy, heliotherapy, and mechanotherapy. The providing of special divisions for the units mentioned above is desirable. However, as most of the equipment for physical therapy is portable, it may not be necessary to have specially designated rooms for each of the above activities, but it is desirable to have cubicles so that several patients may be treated at the same time.

Other Diagnostic and Therapeutic Facilities

As already mentioned, provision should be made for other special diagnostic and therapeutic facilities. This commonly includes metabolism, electrocardiography, radium therapy, etc. Generally, metabolism is provided in a room with the clinical laboratory, while radium therapy may be a special unit of the X-ray department. Until recently, the use of the electrocardiograph has necessitated a special room closely associated with the other diagnostic facilities, but with the advent of the portable apparatus such a provision is not entirely essential.

The Maternity Department

The maternity department in a general hospital should be separated from the remainder of the institution. It should be planned to be self-contained so far as ordinary and special services are concerned, as well as staff or personnel. Usually this department occupies one of the upper floors and comprises the following units: (*a*) Receiving room; (*b*) wards and rooms; (*c*) service facilities; (*d*) nursery; (*e*) labor and birthrooms. It is advisable so far as possible to have all these units on the same floor.

Receiving Room: It is advisable, if possible, to have a receiving room where all patients can be properly bathed, and given the necessary preliminary care prior to admittance to the room or ward. This requires a small room, shower bath, cleansing slab, and toilet facilities, with the necessary provision for linen and supplies.

Examining and Treatment Room: This should be provided with the necessary equipment and supplies and provision for minor laboratory work such as urinalysis, etc.

Service Facilities: These include utility room, diet kitchen, janitor's closet, linen cupboard, clothes chute, and flower room and are the same as on other floors.

Nursery: In locating the nursery, the following considerations should be noted: Convenient to wards but not disturbing to patients; maximum light, air space, and sunshine; accessible to view of visitors through corridor glass without entering.

A complete nursery suite should consist of the following: General nursery for dormitory purposes; bathrooms off main nursery in alcove of separate room; special superheated room or incubators for prematures; small complete nursery suite apart from the main nursery for isolation purposes.

Labor and Birthrooms: The number of labor and birthrooms depends on the size of the department. It is estimated that for each unit of 20 to 25 patients these rooms should be duplicated. A complete labor and birthroom suite would consist of the following: Preparation room; labor room or rooms; birthroom or rooms with sterilizing and service facilities attached or between; instrument and supply room; workroom and doctors' suite providing bedroom and the necessary toilet and laboratory facilities. These should be arranged in a sequence to conserve nursing supervision and service generally.

Isolation Department: It is necessary, in connection with all maternity departments in hospitals, to make the necessary provision of space for isolation of infected patients. It is advisable that this should be a complete suite cut off entirely from the department with no communication whatsoever as to service facilities or personnel.

The Hospital Architect

Richard E. Schmidt, of Schmidt, Garden, and Erikson, Architects, Chicago, Ill.

IN attempting to define the term, *hospital architect,* it will be necessary first to define briefly the general term, *architect;* viz, a person charged with the preparations for a building, its plan and design, and with the supervision of the work of the builders who actually erect and complete it.

The architect is a professional person, who, in very recent times, has become primarily the fiduciary agent whose business it is to administer the funds committed to his charge. The modern architect is equally in his right place and doing his work as architect when the building in hand is wholly without artistic character as when it is rich and beautiful. An architect is a person whose occupation consists of originating and supplying artistic and scientific data preliminary to and in connection with the construction of buildings, their appurtenances, and decorations; in supervising the operations of contractors therefor; and in preparing contracts between the proprietors and contractors thereof. It is to be noted, however, that the word *artistic* is not always applicable; for a man of business or a hospital wishing to have a perfectly plain thoroughly well-built building will, today, naturally employ an architect who will still earn his pay as the intermediary between himself and the builders.

Service of Architects Varies

On account of this businesslike aspect of the modern practice of architecture, the architect's position is regulated by law, in the majority of states. He is obliged to pass examinations, obtain a license, or must be registered before he can practice. For this reason, payment is now generally made by percentage on the cost of the work. When the work is elaborate and involves great labor on the part of the designer, the percentage is greater. Charges for small buildings and additions are often at a higher rate. In the case of small buildings, the amount of service is almost equal in extent to that for a larger building, and in the case of additions or alterations, the architect is obliged to examine and measure the existing work and is put to additional work to design the new work to coordinate with the old.

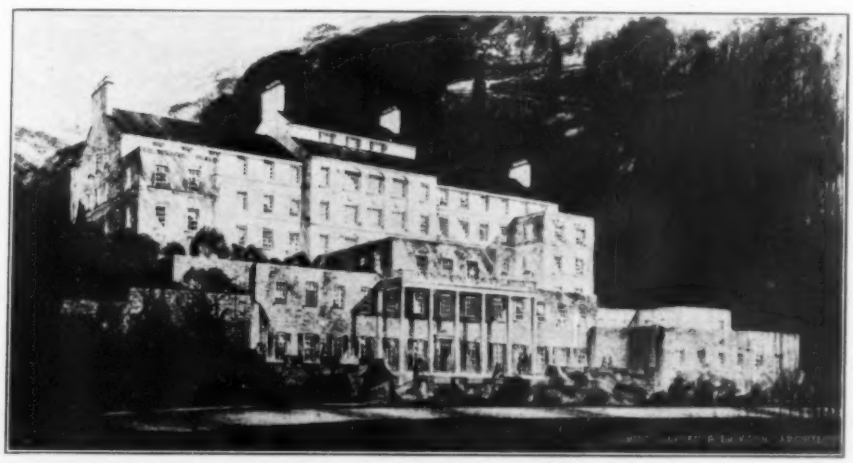
The percentage charged by architects varies, but it should not be overlooked that the quality and extent of services also vary. The architect who supplies such complete plans and specifications that there are few or no omissions which will cause extras or charges in addition to the builder's contract sum, obviously puts more labor, consequently money into the preparation of plans than is required to produce incomplete documents. In view of this and other factors, it is not possible to state a flat percentage charge which should apply to every hospital. Ten per cent would not repay the architect on a very small one. Six per cent on a million dollars would not unduly enrich him, if he supplies complete services.

Complete plans, specifications, and contract documents which leave very little or nothing to the imagination of the builders who have been asked to submit proposals for definite sums, induce the submission of lower proposals and keener competition than loosely drawn documents.

The fact that everything is definitely described permits of closer bidding and reduces the cost to the owners by a sum greater than the architect's percentage charge.

They, furthermore, have another great value in definitely describing the work and services to be supplied; i. e., making disputes and litigation and the attending great cost almost impossible. They will be so complete and clear that very little is left open for dispute or of varying interpretations.

If the plans and specifications are clear and complete, no builder will have the temerity to begin a suit at law for a payment which may have been withheld because of poor workmanship and materials.



VALLEY HOSPITAL, SEWICKLEY, PA.
Schmidt, Garden, & Erikson, Architects, Chicago, Ill.

Duties of the Architect

The architect, having received notice from the owner that he is employed for the work, visits various sites, decides upon one or more positions for the placing of the building, and determines which is the most suitable. When the site has been selected, he arranges for the employment of a surveyor to give him the exact points beyond which no part of the building may project, and then, after a conference with the owner, begins to make preliminary studies. These are again discussed in conferences to ascertain the client's views and ideals and are revised until a satisfactory general arrangement is illustrated by them; thereupon, working drawings, large-scale and full-size detail drawings, as well as specifications are prepared. The architect's duties include the submission of complete documents to builders for proposals, drafting of forms of proposals and contracts, the supervision of the work, the keeping of accounts, the issuance of certificates of payment from time to time in proportion as the work progresses; the general administration of the business, and the rendering of decisions concerning the quality of the work furnished, and the adjustment of other differences of opinion. It is generally agreed that no money is to be paid by the owner to any of the mechanics except on the written certificate of the architect. On the other hand, it is generally understood that the architect is bound to give that certificate when it is due and that the owner owes the money and should pay it immediately upon presentation of the certificate.

Terms of contract between owner and builder usually make it plain that the architect has as clear a duty to issue a certificate of payment promptly as to see that the contractors do their work according to the terms of the agreement. Although the architect is employed by the owner to determine that the work is properly done, he is also required to see fair play between the owner and the contractors.

The builder is engaged to do the work and not the architect; the latter is an expert and can know that the work was properly performed and what the proper equivalent in money payment may be for that work.

The architect endeavors to guard the owner against defects and deficiencies in the work of contractors, but obviously does not guarantee the performance of their contracts; such guarantee is obtainable by performance bonds from surety companies.

On all important work, it is the interest of the owner to have a full-time superintendent on the work.

Inasmuch as the hospital architect's office is a depository of all of the catalogs and advertising matter and much accurate data concerning the performance, economy, and durability of all of the devices and materials peculiar to hospitals, the high-power salesman concentrates his efforts on the hospital superintendent or some other person not as informed about these things as the hospital architect, in order to avoid comparison with articles of the same nature. In view of this condition, the hospital architect can be of invaluable service to the hospital if employed to serve in the purchase of the major portion of the hospital equipment.

Some of the things an architect should not do are: To engage directly or indirectly in any of the building or decorative trades; to have a financial interest in any building material or device, which is specified for a building. He should not guarantee an estimate or contract by bond or otherwise, or expect any commission, or substantial service from a contractor, or from any interested party other than the owner.

Qualification of the Architect

To produce a proper plan, the architect must be able to visualize the problem as a whole, how to arrange the plan to insure proper functioning of each part and the whole, learned by experience or training, or both; obviously, our homes, schools, shops and stores, garages, hotels, apartment houses, office buildings, theaters, and houses of worship each present problems in planning; but every person in this day frequents almost all of them and if he has the power of observation and the necessary vision, he, if he is trained in the use of drawing instruments, the ordinary use of materials, and their relative uses, can prepare a ground plan of any one of these kinds of buildings; as to the engineering and artistic features, that depends upon his training, knowledge of design, and the extent of his artistic ability.

To plan and design a hospital, however, he requires unusually extensive specialized knowledge, inasmuch as the hospital, to be proper and modern, must provide something of almost every other kind of building, also room arrangements and equipment to apply all the tests and treatments practiced on the human body and mind by modern medical science, many things with which the layman is not in contact in his everyday life.

Now the architect, who has made the requirements of modern medicine and nursing a special study, who has applied his ideas in actual construction, has observed their functioning, noted their success or failure, and has observed the relative advantages of one arrangement over

SWEDISH COVENANT HOSPITAL
CHICAGO, ILL.
Schmidt, Garden, & Erikson, Architects.

another, has analyzed them to be able to say which is to be preferred in a small or large hospital or for a private hospital, or for a hospital for an industry, or, in one climate or another; who has knowledge of the advantages or defects, their ephemeral or durable nature, costs of various materials, devices, etc.; who can say that, based on investigation and experience, which is the most advisable to use in a given situation, high-power salesmanship to the contrary notwithstanding, will save a hospital building committee time, money, and useless regrets. He has observed many different ways of performing the same service, is not an advocate of the same one for every hospital, as a person is likely to be whose hospital experience is limited to one or two hospitals.

WASHINGTON HOSPITAL, WASHINGTON, PA.
Schmidt, Garden, & Erikson, Architects.

It is axiomatic that the architect who is continuously engaged by one client and many clients, the number of whose commissions grow with each year has produced work satisfactory to the medical and nursing professions and to the patient who is not the least critical of these groups, whose criticism or opinion is probably the frankest.

There are a number of architects scattered over the country who have had such experience, a few have built many hospitals, some of them upwards of a hundred; they have not copied other work blindly, thereby reproducing defective arrangements or details. They will build in advance of the time, preparing for additions with the least amount of reconstruction; they will build of durable materials which require the lowest cost for maintenance; and to all this they will add good, attractive design. They are, due to economic reasons, located in the largest cities of the country.

The architect must supply all drawings and specifications for the mechanical work, which embraces the boilers, heating and ventilating, electricity in its many uses, including power, illumination, signal systems, call systems, clocks, cardiograph, radio and X-ray wiring, the electro-, hydro-, and other therapeutic installations, then plumbing, refrigerated drinking water, sterilizing and anesthetizing systems, elevators, conveyors, generating plants; in fact, everything of a mechanical or electrical nature; drawings and specifications for structural work, steel, reinforced concrete, or wood, as well as all of the more definite architectural work, such as masonry, carpentry, plastering, painting, marble, iron, etc., for which an architect in a small way of business, may make all the drawings himself, having, perhaps, a draftsman to make tracings. If he is not trained in all of these branches he will find consulting engineers, but if he is in a large way of business or a member of a large architectural firm, many draftsmen and engineers will be in the organization, trained in designing and specifying all of the many specialties required for a modern hospital as well as the same things in use in all kinds of buildings. Obviously, various parts of the building and its equipment of every kind will coordinate more perfectly if all of them are designed and planned in the same organization, in which all of the work can be designed under the direction of one mind. The various men in such an office in which many hospitals are designed have learned much by practical experience which so thoroughly supplements theory.

The Associate Architect

Due to local pride or pressure by an influential friend of a hospital, a second architect, who admittedly has no knowledge of the requirements of a hospital, but who must be permitted to participate in the fee and whatever honor may result in having the name, is saddled on the project, with the title of associate architect. Experience has taught that, unless the associate architect is also an experienced hospital designer who can and will assist in the preparation of the plans and specifications, his connection with the work adds no value in this respect, likewise his value as a superintendent of construction will be less than that which can be secured from the designer or someone who is a part of the designer's organization during the time the plans and specifications were being prepared.

Obviously, a superintendent of construction must have a thorough knowledge of the requirements and conditions of the plans and specifications, which knowledge can be obtained best and most thoroughly by participating in their production.

It is trite but axiomatic to say that an associate architect is employed to obtain the knowledge and services of

two heads; however, if the associate supplies any service it actually works out as a division, consequently, a division in responsibility. It is utterly impossible to describe the architect's services in words or what may be in the minds of parties agreeing to associate, with the consequence that there will be many omissions and lapses when the work is divided between two or more architects.

The Superintendent's Contribution

It is only natural that every hospital superintendent has views of what the hospital should be; that is, its arrangements, materials, and equipment, especially after having been in close contact with the building of a new institution, and observing its equipment and functioning. To create something and to observe it in its growth and development is most fascinating. Those to whom it is the most fascinating, no doubt, long to experience these pleasures again, but that not being possible in the average institution they obtain the sensation vicariously by offering to undertake to advise the building committees and the architects of other institutions and become at once a hospital adviser or hospital consultant; their qualifications vary and only a few are shining examples.

If a hospital superintendent is also a graduate in medicine and continues to augment his knowledge by the advances in medical science, has spent years as a superintendent, and is naturally gifted in observation and analysis, his services are of great value, especially if furnished in coordination of the service of an experienced hospital architect. He will do the things the superintendent ought to do but which the average person bound to one job finds impossible. The hospital architect and the hospital consultant have both had the opportunity of observing the functioning of several different arrangements, provided to furnish the same result. On the other hand, the superintendent generally has not and is not likely to know which is the most suitable for a given condition. It is not intended to state that there are not exceptions in the ranks of superintendents.

The hospital superintendent should make a study of the requirements for the proposed new hospital or addition to an existing hospital by tabulating the existing hospital facilities in the district to be served by the new building, not only for the immediate future but after a lapse of one or two decades, so that the architect can suggest a plan for the future development of the entire hospital which will provide for the grouping of the community, not only in size but in the services which medical science recognizes as essential to the safeguarding of health and life. This will also require a study of the records of the existing hospital to determine which services are increasing and the rate of their increase; on the other hand, which services are declining.

The superintendent should get together statistics as to population, proportion of native whites, foreign-born whites and other races; the social status of the population; the proportion of those residing in single family dwellings and those in apartments and tenement houses; what is to be expected in the future, what area will be served by the hospital. The records should be searched to determine the proportion of patients who were residents of the community and those who were nonresident.

The statistics of the health authorities should be studied by the superintendent to determine the past records of illness in the community. How many beds should be provided in the obstetrical department; do the statistics indicate that provisions shall be made for communicable diseases, for at least temporary housing of mental cases and alcoholics? What effect will hospitals in nearby cities have on the patronage of the proposed hospital? How shall the beds be distributed? Will it be advisable to install a complete X-ray department for diagnosis, for treatment? Will it be advisable to install physical-therapy equipment, or is the community so well supplied with these that patronage would not be sufficient to make it possible to employ expert attendants; likewise will a routine laboratory be sufficient, or does the community require another completely equipped laboratory manned by trained experts in chemistry, bacteriology, serology, etc.

Is there a demand for an outpatient department, or dispensary; a public clinic; are there a sufficient number of patients in the community who are unable to pay the fees of the physician or a large number who cannot pay the fees of groups of specialists so often necessary for complete diagnosis and treatment? The superintendent can gather and tabulate the cost and quantity of fuel, of water, of electricity and gas. The bills for a year will supply a basis upon which the architect can compute if it will be an economy to install a power plant, or an artesian well, if oil fuel is more economical than coal, or vice versa.

When a new building is proposed, the gathering of such data, which is required to insure the planning of a satisfactory hospital, is the most important function of the hospital superintendent.

ST. MARY'S HOSPITAL, SAGINAW, MICH.
Schmidt, Garden, & Erikson, Architects, Chicago, Ill.

The General Contractor

D. A. Garber, General Manager, Associated General Contractors of America; Formerly President, Northeastern Construction Company

TO THOSE whose major interests are not directly concerned with the construction industry, it may prove quite difficult immediately to grasp the fact that this nation expends annually about eight billions of dollars for the construction of highways, school buildings, religious edifices, theaters, houses, hospitals, public buildings, railroads, dams, reservoirs, sewerage-disposal systems, and the several other types of construction that are required.

The continuous investment in construction represents in large measure the permanent wealth of the nation. Almost everything stationary that we see about us, or fail consciously to see most of the time, is construction. It has been designed and specifications drawn for it, usually after many considerations and much sober thought as to its necessity, usefulness, beauty, and cost. The streets, sidewalks, buildings, bridges, factories, reservoirs, and railroads are the products of the construction industry. They were constructed almost piece by piece, and not all at the same time. They were constructed under many different conditions of weather, finances, and labor and material supply. Secretary of Labor, James J. Davis, is authority for the statement made several years ago, that: "More than 11,000,000 of our people are dependent for their living upon the construction industry, and 25 per cent of all the skilled and unskilled labor of the country is engaged in the building branch alone."

Construction purchasers may be divided into two main classes: The public, which may mean the city, county, state, or the United States government; and private capital. When the public buys construction, which for the purpose of simplicity I am going to discuss as a commodity, it is interested only in securing an instrument which will contribute to its comfort and welfare. The public demands more and better highways, public buildings, and other things for this reason only. Private capital, on the other hand, purchases construction for an entirely different reason. It buys for investment only, except in those comparatively few cases where the expenditure is purely philanthropic. In either case the purchaser desires to have, and in all cases is at great pains to see that he gets the most that can be had for the money expended. The motivating reason for this in the case of the public purchaser is, of course, the fact that the commodity must be paid for entirely by taxation, either direct or indirect, and taxation has always been a serious consideration. Private capital is, as previously stated, interested in an investment in construction solely from the standpoint of the income which such investment produces. Private capital deals as shrewdly and as closely as the public. A poor investment to this class of purchaser is a very tangible loss and he endeavors to use the utmost wisdom in his dealings.

The Specialist

For this reason, and for others which I will dwell upon further along, there is a logical tendency for the purchaser to shift the problem of getting the most for the money onto the shoulders of a specialist. Thus has grown up the profession of general contracting, which today holds a place in the business world equally as clear-cut, definite, and responsible as any other specialized line of business. The general contractor, to give a short definition, may be termed one who sells short, one who contracts today at a stipulated price to deliver a specified article, no matter how complicated, at some specified time in the future. He is one who is forced by the demands of his purchaser, both public and private, to bid against the possibilities of rising markets for the materials which he must incorporate in the structure. He must bid against the possibilities of higher wage levels, shortage of labor, good weather and bad weather, changes in the prices of mechanical equipment, and many other factors over which he has but very little control, but upon which he must gamble and sign his name and pledge all of his resources.

The general contractor is one who examines a purchaser's drawings and specifications and guarantees two things in which the purchaser is primarily interested and demands an absolutely definite answer. One is the price and the other is the time of completion. Price is the first consideration of a private investor, in order that he may intelligently estimate his income from the investment. He wants this guaranteed and once having determined it and made his calculations accordingly, he does not want to see it changed. The public is equally interested in price for the reason that it does not want to proceed with any public work without first knowing what it is going to cost.

The time of completion for any given structure, whether it be for public or private use is of great importance. In the case of a public structure, every day of delay beyond the expected date of completion means a day without the use of the facility, which was purposed to add to the public's welfare, comfort, and pleasure. When a private investor or syndicate desires to build an office building, it makes its income calculations on the basis of having that building ready to be rented at a certain time. Every day of delay beyond that time is a direct and tangible loss of income from the building.

In the control of these factors and others lies the function of the general contractor. He is the best guarantee of a definite price and likewise the best guarantee of a definite time of completion. He has always, and at present more than ever before, taken these responsibilities squarely upon his shoulders and made a valiant effort to deliver exactly what he promised. He is not, of course, to be especially commended for this quality because a like quality is demanded in all other lines of business

and is lived up to equally well by most other business men. What I wish to point out is that the general contractor has just as many serious responsibilities and is discharging them quite as ably.

Coordinates Work

In a construction operation, as in any other enterprise, the economics of centralized management cannot be denied. On a construction project, it is the function of the general contractor to provide this management. He coordinates all of the various elements of work that go to make up the whole. He plans the activities in connection with the project and sees that there is a definite, economical system of operation with a proper sequence of activities, all tending to deliver the completed project at a specified time. He is skilled through years of experience and knows the best methods to pursue. He keeps up to date in his field of work through his constant operations and contacts with his associates and can provide the construction purchaser with the best type of management.

Labor

Labor turnover, a subject of much concern and study in the manufacturing industries in recent years, is as great if not a greater problem in construction. Labor turnover on a construction enterprise can be an expensive element of cost, particularly if the project is large. The constant loss of trained labor through strikes, layoffs, and dissatisfaction, and the hiring of new, untrained men will materially curtail progress and increase costs. Where this occurs in any great degree, it can usually be laid at the door of mismanagement and lack of understanding. The experienced contractor reduces this to a minimum. His business is to know what kinds of labor are required for the particular project in hand, where and how to get them, what to pay them and how much they should produce, and how they should be handled. It is his function to be entirely conversant with such matters as public-liability insurance and employees' compensation insurance, thus protecting both the owner and himself. Labor problems even when everything is normal are not to be taken lightly and must be handled with a great amount of skill.

Construction is necessarily a hazardous industry. Accidents sometimes happen to workmen employed on the project, and occasionally to the general public. These not only cause sorrow and misery through injuries and deaths, but are sources of great expense to those responsible for the project. Thorough-going accident prevention methods are used by a great number of contractors and the practice is fast becoming general throughout the industry with, I am happy to say, excellent results. Accident prevention, although but one small element of good construction practice, is a serious business and should rightly be left in the hands of those who through daily experience are best able to promote it.

Architects and Engineers

Architects and engineers are looked upon by the contracting fraternity as the owner's agent, his substitute, and his right hand. They are best able to advise him with respect to matters of design and specification. They are skilled in their lines of work and in the vast majority

PONCA CITY HOSPITAL, PONCA CITY, OKLA.
Schmidt, Garden, & Erikson, Architects, Chicago, Ill.

of cases if left to pursue the inclinations dictated by their skill, training, and experience can lay down for the owner a detailed and intelligent specification of what he wants and what can be procured for the money available. Neither the architect nor the engineer are regarded as those shrewd, close-dealing, active sort of chaps who can best execute the project after it is designed and specified. The architect and the enginener in most cases does not attempt to do this, but leaves the matter of execution to the general contractor. Conversely, the general contractors do not as a rule encroach upon the domain of the architect or engineer. They, in turn, feel that they are not best fitted for the design and specification end of the work and they studiously avoid it.

There are exceptions on both sides, but, in general, there is a very clear-cut, definite division of the functions, which all of the parties at interest respect. In this the architect, the engineer, and the general contractor are each to be commended to the owner for a keen perception of limitations and adherence to a policy through which they jointly provide him with the best possible form of service.

Separate Contracts

There are cases where the general contractor may be said to encroach somewhat upon the functions of the engineer. Usually when this is the case, it is confined to some specialized form of engineering or building work such as factory building or industrial-plant construction. The matter, however, is of such small moment that it may be disregarded, for all practical purposes. If investigation into one or another of these instances is made, it is usually found that the contractor is also an engineer, and it may be difficult to determine whether he is an engineer usurping the functions of the general contractor or vice versa.

Upon occasion, however, we find owners who feel that they can save the modest profit which the general contractor asks for his experienced and responsible service. There are architects and engineers in both private and public life who believe also that it can be done. The usual procedure, when the attempt is made, is to separate the various elements of the building work, such as foundations, steel work, brickwork, plastering, plumbing, electrical work, heating and stonework, take bids on them separately and award separate contracts, leaning upon the architect to coordinate the activities and thus per-

form the function of the general contractor. The wisdom of this procedure has always been questioned by thinking men and indeed it can logically be asked whether the average architect or engineer who performs only an occasional job of management and coordination can compete in energy, judgment, methods, and experience with the man who makes it his everyday business to do just this. There is almost an art in coordinating the general construction of a building with the work of the electrical contractor, heating and ventilating man, the plumber, the roofer, the painter, the plastering contractor, and the many others who have specialized contracts in connection with the average building project. I do not believe the practice of awarding separate contracts for the various portions of a building and turning the management over to the architect is a growing one. Rather I think it is gradually disappearing.

Day Labor

A more serious problem in the construction industry is what may possibly be a growing tendency of public officials to execute such public-works construction as is intrusted to their care with their own equipment and hired labor. This practice, commonly known as the day-labor system, proposes the total elimination of the services of the general contractor. Its basic premise is that the public official can execute a construction project as cheaply, as quickly, and with as close an adherence to the specifications as can the general contractor. It goes one step further. The advocates of the day-labor system claim that not only can this be done, but the profit which would ordinarily be paid out to the general contractor can be saved.

The elimination of the specialist is a poor practice. Day labor in public-works construction puts "all the eggs in one basket." It makes the public official not only the designer and specifier, but the inspector and sole judge of the sufficiency of his own work. It loses to the public an opportunity to have its plans and specifications checked by another agency. It robs the public of the possibilities of savings through the competitive bidding of the specialists. The day-labor system does not guarantee a predetermined price as does the contract system. It does not guarantee a fixed time of completion with a serious penalty for overrun as does the contract system.

As to savings through the day-labor system, space permits of but one example, but it should suffice. In a midwest city that for the past twenty years has constructed all of its public works, except buildings, with its own equipment, hired labor, and the purchase of materials with public funds, eight sewer projects were compared in cost with similar work done in a neighboring city by the contract method. The cost of the day-labor work averaged 33 per cent higher.

President-elect Hoover, while Secretary of Commerce, made the following statement: "I would like to see an independent investigation into the relative cost of construction of public works departmentally, as opposed to contracts. I believe that here there would be demonstrated a great public waste. It is my own belief, as an engineer, that construction by contract of public works makes for national economy."

The confines of my subject do not permit of further digression, but if I may be permitted to say that the general-contract system is an economic necessity to the nation, and to recommend its use to the exclusion of all other alternatives, I will feel that the labor of preparing this article has been justified.

ST. MARY'S HOSPITAL, PASSAIC, N. J.
Crow, Lewis, & Wick, Architects, New York City

III. Recent Tendencies in Hospital Architecture

Tendencies Observed in the East

L. H. Lewis, of Crow, Lewis, and Wick, Architects, New York City

THE present reign of prosperity, as applied to building construction in this country, has unquestionably extended to the hospital field; by reference to the trade reports it will be seen that there probably never has been a time of equal length in this or any other country, when so much money has been expended in new hospital construction as in the past few years; it would seem as though this program of expansion has touched to a degree every hospital, small and large, in this great country of ours and the hospitals of the metropolitan area in and around New York City have enjoyed what is probably their full share of this program.

As never before, seemingly, hospitals have demonstrated their ability to obtain funds for building purposes. A few years before the world war, a hospital in the vicinity of New York hesitated to go before the community it serves in a campaign to obtain $100,000 for a much-needed enlargement; after no little deliberation by the board, it was decided to set the amount at $90,000 and the campaign was launched accordingly; this campaign proved successful. A few years after the war, this same hospital, without hesitation, went before its constituency with a financial campaign for $600,000 for further enlargements which eventuated in obtaining a grand total of nearly $1,100,000.

A more recent instance is that of a hospital which established a building program in which the budget was not to exceed $650,000. Because of liberal contributions, this program was enlarged to such an extent as to involve an expenditure of close to $4,000,000. Thus, though building costs are considerably higher than formerly, hospitals are, even under these conditions, obtaining better and more completely equipped buildings than ever before.

FRENCH HOSPITAL, NEW YORK CITY
Crow, Lewis, & Wick, Architects

General Design

The present tendency, in both city and suburban hospitals, is toward higher buildings; this is often necessitated by property and zoning limitations and, especially in the larger units, as being more economical to operate within the city limits. There is also a tendency, in city hospitals, to conform, more or less, to the modernized architecture of the day, this being emphasized somewhat by the "set-back" city zoning requirements. Not only in the city institutions, but even where ground is plentiful, the higher buildings are found advantageous and economical of administration, while the upper stories furnish the more attractive quarters. Convalescing homes with attractive grounds and surroundings in the suburban districts and sometimes at considerable distance from the parent institution, have recently been constructed, these homes forming a branch of the city hospital and relieving it of the care of a goodly proportion of the convalescent cases, thus providing needed room in the parent institution for the more active cases. In the suburban hospitals these convalescent buildings are sometimes provided as a separate building on the hospital property.

Architecturally, hospital buildings are generally simpler in design than formerly so as to equalize somewhat the higher cost of construction and, at the same time, to make these buildings more domestic in character than the more conventional monumental design to be found in many of the older buildings.

This effort to give hospital buildings a more homelike and attractive atmosphere is being carried more and more throughout the building and is becoming increasingly the ambition of architects and hospital authorities alike. To this end, also, the color schemes throughout the hospital are of warmer shades and more attractive variety.

Public Rooms

Entrance lobbies are larger and more inviting and are equipped with attractive floor coverings and furnishings in a manner not possible in the older arrangement of entrance corridors; public rooms and departments of the hospital generally are approaching, more and more, the attractive interiors to be found in the well-designed modern hotel and apartment residence; reception rooms, board and staffrooms, executive offices, dining rooms and, in particular, the private and semiprivate rooms

and wards are all, in architectural form and color, in furniture and draperies, in lighting and other fixtures, receiving a consideration which is apparent to the most casual observer.

Bedrooms

To approach more nearly this ideal of arrangement, wards are made smaller than formerly, seldom exceeding a capacity of ten, or at the most twelve, beds. A basin with special gooseneck faucets is generally provided in each ward. Where curtains are required, materials of finer texture and warmer shades are selected which has a wholesome inviting effect. Window draperies are being used to an extent unthought of a few years ago.

Present-day private rooms might be divided into three classes; suites with toilets and baths, single rooms of larger proportions with separate compartment for toilets and basins, and rooms with basins in the room itself. Hospitals seem to be leaning more and more toward the interior, artificially ventilated toilet rooms and baths such as exist in modern hotels.

There seems to be an ever increasing call for more private and semiprivate room service in proportion to ward; hospitals, of considerable size, are being constructed containing only private rooms. Buildings have also been recently constructed consisting of a doctors' professional building in the lower story with the upper stories designed for complete hospital service with separate elevators.

Semiprivate rooms, which seldom exceed a four-bed capacity, also may be divided into two classes, those having separate compartment with toilet and basin and those with basin only in the room. These private and semiprivate rooms have floors and sanitary bases generally of terrazzo with attractively colored rugs while in the wards the terrazzo surface is sometimes broken by a linoleum "runner" in the central walking space.

Transoms over doors are sometimes omitted and ventilating grilles provided in the flush panel doors. Door frames, of course, are invariably of metal.

Private and semiprivate rooms are sometimes provided with open-air balconies separated from the interior by French windows which can be opened and a portion of the bed pushed out for air and sun treatment.

Where ceiling lighting fixtures are provided in rooms and wards, they are generally of indirect lighting pattern.

Outlets are being more and more provided for fans with distant control in all patients' rooms. Outlets are provided, where deemed advisable, for removable telephones. In the majority of instances, hospitals are not providing wiring for radio installation, the preference being for the individual set-up in each room and ward.

Solariums

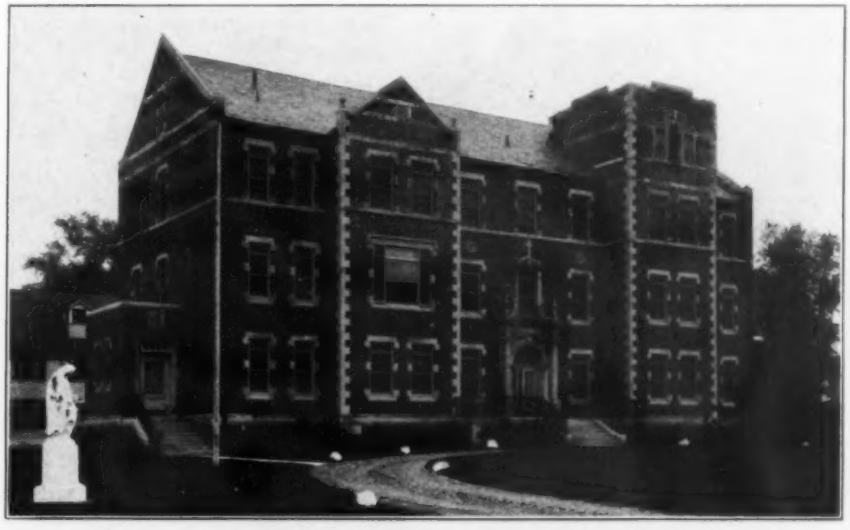
Solariums have lost nothing in their popularity because of added attractiveness in color and furnishings.

Corridors

Considerable endeavor is being made to overcome noisy corridors; floors of the softer materials such as linoleum or rubber with sanitary base and border of terrazzo are quiet and comfortable for traffic; at the same time, it is becoming a practice to make corridor ceilings of soundproof materials which have been developed to such a degree as to reduce considerably the sound reverberation, especially in the longer corridors.

Wherever possible, to further reduce noise in corridors, the elevators open into a lobby connected by doorway to the corridor rather than directly into the corridor itself.

As a part of these corridors and in as strategic a location as possible, usually forming an alcove to the corridor, is located the nurses' station with deskroom, record files, medicine cupboard with basin and running water, telephone and nurses' call annunciator, and sometimes with a linen or storeroom adjoining; annunciators from the nurses' call system are sometimes located also in diet pantries and nurses' workroom and wherever a nurse is apt to be kept for any length of time. Doctors' call systems are generally provided in all corridors. Complete hospital service today also calls for a doctors' in-and-out



ST. VINCENT'S NURSERY AND BABIES' HOSPITAL, MONTCLAIR, N. J.
Crow, Lewis, & Wick, Architects, New York City

NURSES' RESIDENCE, HOME FOR INCURABLES, NEW YORK CITY
Crow, Lewis, & Wick, Architects.

system located convenient to the entrance where the doctor can have no excuse for not checking as he comes in and goes out.

Kitchens

The modern hospital kitchen department is calling for increased space to provide for a continually increasing completeness in service, the size being dependent upon the character of service, centralized service requiring considerably more space than where a part of the service is performed on the several patient floors. The kitchens are given a sanitary finish to floors and walls, generally with tile surfaces, and an attractiveness in appearance beyond that of any previous time.

As a branch of this department is generally included the general dish-washing room, refrigerator room and butcher shop, vegetable room and bakery; also as a rule, in close proximity are located the dining rooms for male and female help.

A refrigerating system is provided, not only in the larger, but quite generally in the smaller, hospitals. Electrical refrigeration is being increasingly used, especially in the smaller plants.

Operating

Operating rooms are generally arranged in pairs with sterilizing and sometimes doctors' wash-up room between; walls and floors are being finished increasingly in the darker and softer colors. The overhead skylights seem to be disappearing. Where the hospital is a teaching institution, overhead galleries are provided in the larger operating rooms. Increased working space for nurses is being provided and restrooms and other accommodations for both doctors and nurses are receiving more attention.

While the main operating department occupies generally the upper story, the emergency operating rooms in the basement or lower story are being built as sanitary in finish and often as completely equipped as the major operating rooms.

Receiving Departments

Patients' receiving departments, with record office, bathing and toilet facilities, and rooms for patients' clothes are generally located near the emergency operating department and ambulance entrance in the lower story.

Special Departments

As everyone interested in hospital practice knows, the X-ray and the therapy departments and laboratories are calling for constantly increased space in proportion to the size of the hospital. The lead surfacing of walls is being replaced more and more by ray-proof rubber and barium plaster; in addition to being as efficient as lead, the rubber surfacing makes an attractive appearance which with the soft texture appears as a real improvement. The portable cardiograph seems to be approaching the stage wherein the necessity of a separate cardiograph room will no longer be needed.

Outpatient Departments

In the outpatient departments, waiting rooms are being segregated so as to bring the waiting patients nearer to the clinic where they are to receive treatment. These clinics are being provided more and more with individual rooms or cubicles for treatment and after treatment of an increasing proportion of the regular hospital service is being rendered through these clinical departments calling for continually increasing quarters. This might be said as well of the social-service department.

Auxiliary Buildings

Nurses residences, in line with the hospitals, are receiving an attractiveness in finish, within and without, beyond that of any previous day, with well-equipped class and demonstration rooms, laboratories, living and reception rooms, libraries, and, occasionally, a swimming pool. Each nurse is provided with a separate room, generally with lavatory. Suites of one or two rooms with private baths are provided for the supervisors and others in authority. In one of the large hospitals in New York City, a residence to provide for 200 male and female help was erected recently.

The larger hospitals today call for an auditorium with flat floor and movable chairs, generally with a stage and gallery, to provide for lectures, special meetings, and entertainments.

General

In the above, there has been no endeavor to more than touch upon some of the features, especially those more prominent wherein more or less decided changes are taking place; the writer feels sure that other improve-

ments of equal importance will occur to the reader familiar with the changes taking place in hospital design and practice.

In conclusion, it may be said again that in hospitals, as in nearly every type of modern building, a completeness in equipment and finish is required beyond that of any previous time in this, and perhaps any other country. It is realized that a well-equipped and well-appointed hospital building can do much, with good medical service, toward the betterment of the patient, and an attractive, inviting atmosphere, within and without, can render much additional service.

Fire Protection

Every precaution is taken in present-day hospital construction to overcome the fire hazard. Recently, in a New York City apartment hotel, a serious fire developed in a room in the twenty-second story which practically burned itself out before the occupant, who was asleep in an adjoining room with the door closed, was aware of its existence. Fully as efficient a fire protecting condition all agree should exist in every part of the present-day hospital.

In hospital furnishings, metal construction is being used more and more; this applies not only to furniture proper but to built-in cupboards and shelving. Metal furniture is obtained in attractive colors and a delicacy in design which is increasing its popularity.

Heat, Light, and Power Plants

A central high-pressure heating plant is generally required in the larger hospitals to care for the laundry and sterilizers, as well as the light and power plant where same are installed; the boilers are preferably of the water-tube type and having automatic stokers, coal- and ash-conveying machinery; seldom is oil used as fuel.

In the larger hospitals, an economy is also to be found with the installation of separate light and power plants

HOSPITAL OF THE HOLY FAMILY, BROOKLYN, N. Y.
Crow, Lewis, & Wick, Architects

consisting of two or more units. Where such individual plants are installed, arrangement is generally made by the hospital with the public service for a "break-down" service in the event of a possible complete failure of the local plant; when such a service is provided an automatic switch can be installed which, in the event of one service ceasing, immediately connects the other so as to avoid even a momentary deprival of full light and power service to the more important departments of the hospital.

A centrally located incinerator connected to the main chimney is in present practice almost invariably provided to take care of the entire hospital.

A RECEPTION ROOM
Crow, Lewis, & Wick, Architects

Tendencies Observed in the Middle West

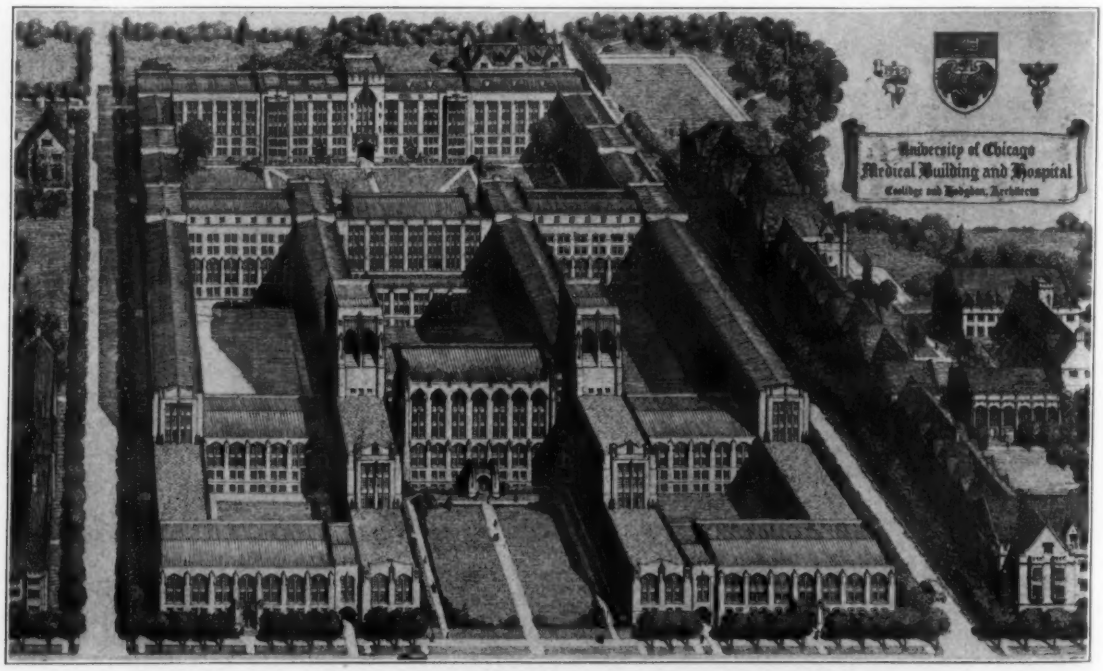
Edgar D. Martin, of Pond, Pond, Martin, & Lloyd, Architects, Chicago, Ill.

IT MAY be stated that with the increasing complexity of medical practice and the important part now taken by hospitals in medical science and practice, the planning of hospitals has taken on an entirely different aspect. It requires no effort of the memory to recall the species of glorified medical boarding house of a decade or two decades past. The doctor's first and second finger, a stethoscope, and the patient's own imagination sufficed for diagnosis. The practice of medicine was then an art rather than a science, and if by shrewd guess and crude observation, the practitioner did not decide on one of the half dozen out of over 150 diseases for which a specific was in vogue, or if an amputation, a gross tumor, or emergency surgery of the abdomen did not bring the surgeon hovering over the newly admitted patient with a sharp knife, the only recourse was the best possible care. The welfare of his soul was the preoccupation of the good Sister whose main purpose was to console the patient even unto death.

The writer is familiar with the hospitals planned in the Middle West during this period, grim, ugly structures expressing gloom and disaster. One is typical of all. If the architect was a hospital specialist, he provided two or more rooms on an upper floor with large windows and skylights and arranged them in suite with what he called a sterilizing room—more often than not it was a dump for the infected linen and garbage from operations—in which an autoclave and other sterilizers were crowded and where the nurse sterilized instruments and prepared dressings. This arrangement was considered an achievement of planning. There were large wards that held from six to thirty beds, a scattering of diet kitchens and sinkrooms. The space left over was divided into rooms of such size and shape as the irregular outline of the building dictated or the requirements of architectural designs permitted. They were given titles from a dictionary of medical terminology kept for reference. How the various functions were distributed did not matter much for, very often, the names assigned to various rooms would all be rubbed out and allocated, if anything to the improvement of the functional scheme. While the architecture passed from Sullivanesque to Pseudo-Colonial, once the entrance threshold was crossed, the main problem in design, one might well imagine, was properly to terrify the patient with a morguelike superaseptic atmosphere of cold formality and glaring white bareness.

Attractive Hospitals

The community hospital today in the Middle West endeavors to convey an entirely different message. The hospitals we now build range from a modified Georgian to a distinctly modern and are both colorful and restful in design. Dignity is preserved, but formalism is intentionally excluded. The interior has the same atmosphere of simple attractiveness as has the suburban home or the comfortable well-planned residential hotel, which the patient, in all probability, has just left, for the modern hospital is in reality an expanded home which extends the hand of sympathy and hope rather than the elbow of austere reserve and indifference. In form and color, the building is essentially domestic, as opposed to insti-

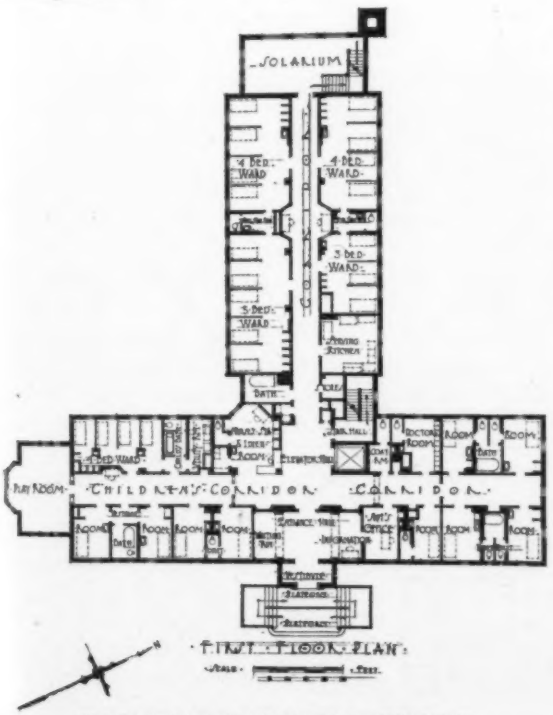


UNIVERSITY OF CHICAGO MEDICAL BUILDING AND HOSPITAL
Coolidge & Hodgdon, Architects, Chicago, Ill.

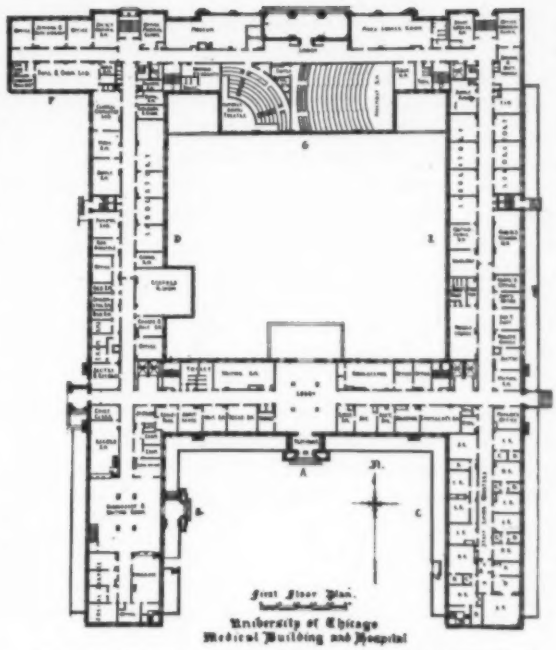
tutional. The patient, apprehensive and suffering, on entering is received by a trained receptionist, sympathetic and interested. A moment's wait for the admission routine in the homelike reception room and the patient is ushered to his room, intimate and inviting, furnished with period furniture, wooden beds, soft carpets, pictures, and cheerful hangings. The former interminably long hospital corridors, now broken by arches, are treated with accoustical material for sound deadening and with floors of warm-appearing material. At the ends, bathed in sunlight, are solariums with comfortable chairs, flowery cushions, bright hangings, tables, lamps, and flower boxes—a place of excursion where the blue of the sky, and the green of the landscape await the convalescent patients, and where relatives and visitors may wait and rest while the patient is receiving the nurse's care.

Small Wards

The large ward is now regarded as a barbarism. The former chamber of horrors into which the sick were herded, each patient suffering and sharing the suffering of those about him, is now replaced by semiprivate rooms and small wards. It is now found that six four-bed wards can be placed in approximately the same space as required to house 24 patients in a single ward. The surroundings in a large ward have always been objectionable to the patient as well as inimical to ideal medical practice. The inflexibility of the large ward made administration difficult. From the administrative standpoint, the small wards have the added advantage of elasticity as the proportion of the sexes varies and afford greater availibility for the medical classification of cases. The small ward can more readily be given the attractiveness of a private room ministering to the personal psychology of the patient.



FIRST FLOOR PLAN, COTTAGE HOSPITAL
GROSSE POINT, MICH.
Stevens & Lee, Architects, Boston, Mass.



FIRST FLOOR PLAN, UNIVERSITY OF CHICAGO MEDICAL BUILDING AND HOSPITAL, CHICAGO, ILL.

With our more exact knowledge and ability to control communicable infection, the pavilion type of hospital, copied from European examples is fast disappearing. There, the belief prevails that individual building units are requisite for the isolation of varied types of diseases. The most successful recent plans are of T or H form with separate service and utility buildings; however, the adaptibility of the multiple-storied building to hospital requirements is being increasingly recognized. Vertical travel lends itself to elasticity in departmentalization, simplifies service problems, is rapid, direct, and economical. The cost of construction is greater and while their superiority is manifest, the 15-, 20-, and 25-story hospital has not been received as yet with favor except in large centers where land values are excessively high.

For the recent teaching hospitals, in the most instances, a collegiate type of architecture, in harmony with the tradition and buildings of the teaching institution, has been employed. A remarkable example of successful architectural treatment is the teaching hospital at the University of Chicago here illustrated.

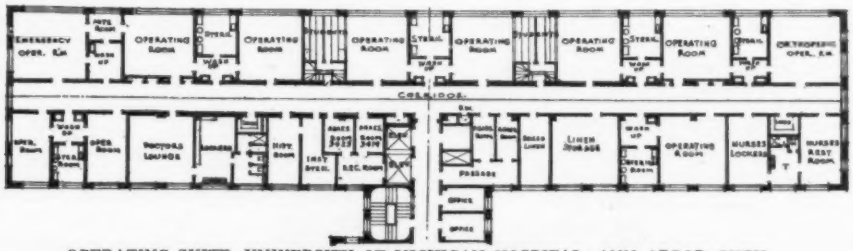
Standards of American College of Surgeons

It should be well emphasized that the influence of the American College of Surgeons has been a major factor in the recent improvement in hospital planning in the Middle West. With the increasing interest and understanding of the hospital standardization of the College of Surgeons, fewer and fewer communities are content with an institution not meeting the requirements of their programs. The effective adoption of standardization demands that the architect plan a better working environment for the hospital staff and personnel and that he adapt the physical plant to new requirements of systematized routine and improved hospital technique.

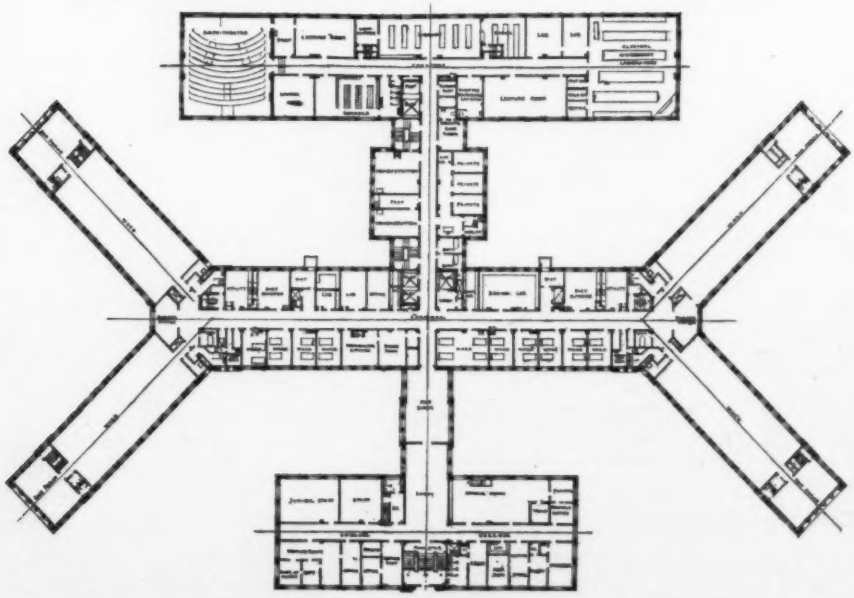
Correlated Departmentalization

In the present activated state of the evolution of hospital design, the problem of the hospital architect is to readjust the old conception of planning to a correlated departmentalization of the various functional units so articulated as to facilitate the practical working of the American College of Surgeon's standardization routine. In the standarized procedure of the administration department, value is placed on a proper reception upon admission which will afford a rapid and comfortable adjustment of patients to the new surroundings; unabridged and accurate case records properly supervised and readily accessible; and an effective well-organized casualty service. The architect accordingly now arranges the various administrative offices of the business management and the medical staff, the admission department, the casualty or emergency suite, with the two entrances close together and under the same supervision. These departments articulate in operation and must be correlated in the plan.

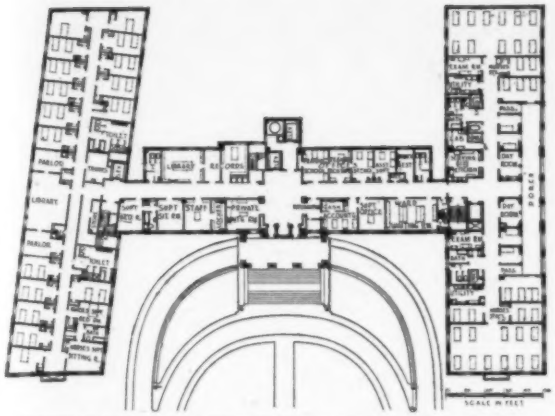
Over 2,000,000 men, women, and children meet with injury each year and the casualty suite formerly relegated to an out-of-the-way corner of the basement is now given an important placement. The best-planned recent hospitals in their casualty department include a receiving ward, emergency operating room, and a recovery ward so placed and arranged that the emergency patient is moved directly to the emergency operating room, or to the main operating department, or to the wards on the several patient floors through private corridors without passing along the main lines of travel. This same arrangement of privacy is provided for ambulance cases in the admission department. A separate retired waiting room is provided for patients awaiting the filling out of admission data, as is also a retired reception room for relatives or friends in an emotional condition. Absolutely private means of telephonic communication must be accessible. The business administration suite includes offices for the superintendent and superintendent of nurses and their assistants, with anteroom and secretary's office and with the accountant's office articulated both with the superintendent and the admission suite. The accountant must be available for consultation and verification of the credit standing of an entry patient. The social service is convenient to the admission suite, casualty suite, and diagnostic clinic. The medical staff should be assigned telephones and a locker and a retiring room close to the main entrance. A suitable and comfortable conference room for staff meetings must be provided for the assembly of the entire staff, this room articulated with the library and with the case-record files in which are kept, accessible to the staff, at all times, the history of all patients both current and recently completed.



OPERATING SUITE, UNIVERSITY OF MICHIGAN HOSPITAL, ANN ARBOR, MICH.



MAIN FLOOR, UNIVERSITY OF MICHIGAN HOSPITAL, ANN ARBOR, MICH.
Albert Kahn and Associates, Architects, Detroit, Mich.



FIRST FLOOR PLAN, JEWISH HOSPITAL, ST. LOUIS, MO.

Scientific Facilities Important

Fundamentally in its present-day conception in the Middle West, the hospital is a laboratory of applied science. The planning takes into account that its efficiency is dependent on the scientific facilities afforded for determining the patient's diagnosis and the carrying out of his treatment. The architect who has given study to the hospital problem now knows that modern diagnosis and treatment involves the grouping and organizing of specialists in the use of extensive and special equipment. His ability to evolve a workable plant is dependent on the extent of his knowledge of the functioning of each of the above factors, more than on his understanding of the requirements in the matter of the preparation and service of food, the needs of nursing technique, and the principles of aseptic surgery. The essential elementary requisite of the modern hospital plan is the correlated departmentalization of the various functional elements into coordinated, self-contained, compact units, articulating with coacting services, each completely isolated and within its own sphere of activity. It is regarded as indispensable in good hospital planning that lines of travel, of visitors or of service or of utility, do not invade one department in their course to or from another.

The architect, through his varied experiences with hotel and commercial planning, necessarily has had a more widely practical viewpoint toward the food service question and this matter should be left in his hands.

Solving Special Problems

The recent hospitals in the Middle West show, on the part of the architects, a greater familiarity than in the past with technique of caring for patients with communicable diseases and the primary principles of this technique as they affect the planning of pediatric and obstetrical departments. The architect now can be relied upon to arrange for the isolation of infected obstetrical cases and the semi-isolation of gynecological and pediatric cases.

The plan requirements for group nursing is now receiving study by architects. The trend toward group practice among doctors injects new complications for the designer; and the diagnostic clinic, as an adjunct of group practice, is now valued as an important community institution. The articulation of the diagnostic clinic with the clinical laboratory, radiograph, and the other diagnostic and treatment facilities of the hospital is imperative, as is an arrangement that simplifies the admission routine and insures accessible, fully written, and scientific case records. In some instances, recovery wards are provided adjacent for tonsil and adenoid cases.

Simple Operating Suites

The operating suite always has received exaggerated attention from the designer. A tendency in the past was to overplan the operating room itself beyond the practical requirements for its functioning. Surgeons now recognize that the efficiency of the operating suite depends upon the integral coordination of the correlated service rooms, utility rooms, sterilizing rooms, scrub-up rooms, workrooms, and laboratories. The operating rooms are not as formerly, excessively large. More stress is laid on the expansion and refinement of the operating department in the equipment of special rooms for specific surgical or semisurgical work, such as fractures, urological, or foreign bodies. The surgeon now asks for operating rooms simplified as far as possible and the elimination of plumbing, sterilizing apparatus, and built-in fixtures. Almost invariably green or other soft-color tile is liberally employed for walls. Some form of shadowless artificial lighting always supplements natural light. A feature of planning to be insisted on is the complete isolation of the utility room, to which the potentially infected used instruments, utensils, soiled linen and tissue are removed in the clean-up after an operation. The disposition of rooms and lines of travel must render any physical contact absolutely impossible between the clean-up and sterile supplies, containers, or instruments.

FOURTH FLOOR PLAN, JEWISH HOSPITAL, ST. LOUIS, MO.
Graham, Anderson, Probst, & White, Architects, Chicago, Ill.

This article has attempted to present nothing more than a brief outline of the recent trend of hospital planning in the Middle West as exemplified in the work of the best qualified practitioners. Unfortunately ignorant planning by incompetent architects is still the rule, par-

ticularly for Catholic work. The architect is often looked upon as an appendage to the building program whose fee is a regrettable burden on the building fund. There are, however, some indications of a change of attitude and a better realization of the value of the architect's professional services. The veil of mystery has been more and more torn away and the architect now is, to a larger extent, the confidant of the surgeon and his coworkers. He has been permitted to visualize more clearly the involved processes of medical treatment and their physical requirements. The functioning of modern medical science in the hospital is the coordination of diverse procedures which involve an extensive personnel and elaborate equipment. The effectiveness of the results is dependent on the skill and ability of the architect to evolve a plan which facilitates this functional coordination.

Responsibility and Value of the Architect

The importance of the architect's position in the economic world now receives more recognition. The immensity of the financial outlay now required for first cost, as well as for maintenance, has impressed hospital building committees with the complexity of their problem. The value of a practical plan from an operating standpoint has been accepted as a major influence on the cost of maintenance, and, in consequence, the size of endowment. A wasteful and over-elaborate design means an excessive first cost. Many architects accept a broad interpretation of the responsibility of professional service. The competent architect considers the obligation of thoroughly understanding the financial and business nature of the client's problem as equally important with the production of an attractive, well-constructed, and practical building. When the selection has been made with judgment, invariably success has attended the services of architects who have given a thorough study to institutional needs. It may then well be asked if there comes before the hospital board, in their varied responsibilities, any more fundamental or critical decision than the selection of their architect.

Tendencies Observed in the Ohio Valley and the South

E. Eldridge Hannaford, of Samuel Hannaford & Sons, Architects, Cincinnati, Ohio

HOSPITAL construction is changing continually. That which is standard and good practice today may be obsolete tomorrow. A new technique developed, a new piece or type of equipment may be brought out, and the accepted plan of a department may be entirely changed by this innovation.

Two other factors also enter into present-day hospital construction very strongly: (1) Rising costs of material and labor have forced the hospital superintendents, consultants, and architects to use all their ingenuity to plan more economic buildings. (2) The public is making greater use of hospital facilities and is expecting more and more in the way of service, comforts, and even luxuries than ever before.

Tendencies in the Ohio Valley

Hospital tendencies in the Ohio Valley may be taken as fairly representative of the general trend all over the country excepting, possibly, the South. In general, these tendencies are as follows:

1. The use of compact block-type multi-story or "skyscraper" hospitals as compared with the older type of separate units or pavilions three stories or less in height. This newer type was brought about by three causes: (*a*) High land values. (*b*) Mounting administrative and nursing costs, necessitating a compact and efficient plan arrangement. (*c*) Improved and more dependable elevator service thus making the "skyscraper" hospital possible.

2. Greater use of the fireproof type of hospital construction brought about by: (*a*) A growing realization on the part of everyone of the criminality of housing sick people in nonfireproof or even semifireproof buildings. (*b*) Economies effected over a period of years by this type of construction due to small depreciation, ease of maintenance, and low insurance rates resulting from its adoption.

3. Smaller-size rooms, more efficiently planned; with lower ceilings; arranged to economically fulfill their functions without waste space. All of this has been brought about by the universal desire to combat rising building and administrative costs.

4. Better placed and more adequate service facilities due to a growing realization of the fact that no hospital can function economically unless the various services meet the demands made on them without entailing extra steps or conflicting traffic, with consequent loss of time on the part of the hospital personnel.

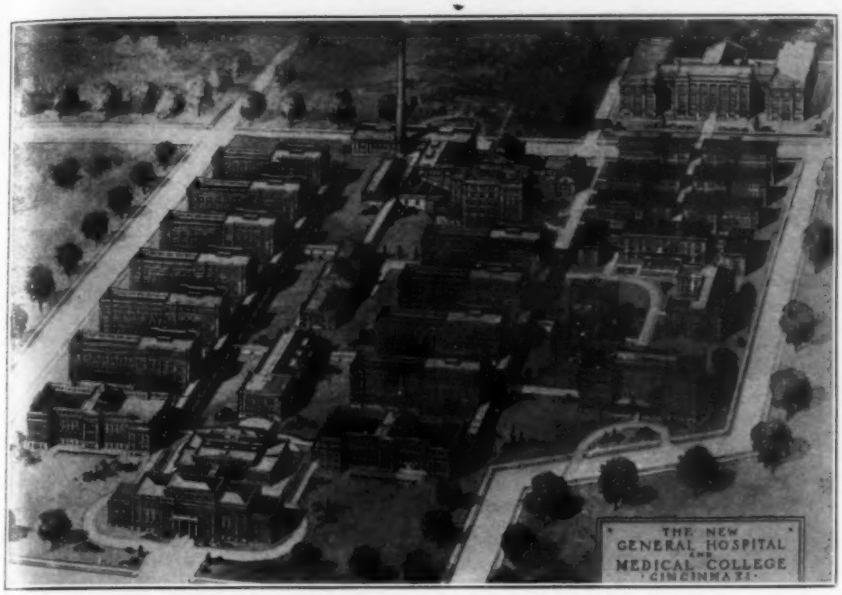
5. More extensive development of the surgical and maternity sections of the hospital (particularly the latter) brought about by the ever-increasing use of hospital facilities by the public.

6. Greater development of the laboratory, X-ray, and outpatient departments due to the recognition of the importance of providing better diagnostic facilities and for extending preventive work.

7. Establishing of well-equipped departments for all types of physical therapy, such as heliotherapy, artificial-light and heat treatments, diathermy, etc., brought about by the growing recognition of the efficacy of these types of treatment by hospital and medical personnel and the general public.

8. An increasing tendency to plan all units to properly accommodate their equipment thus making for increased efficiency and elimination of waste space.

9. A more extensive use of impervious materials for floors, wainscots, window stools, etc., because of their permanence, sanitary qualities, and ease of maintenance.



BIRDSEYE VIEW, NEW GENERAL HOSPITAL AND MEDICAL COLLEGE, CINCINNATI, OHIO
Samuel Hannaford and Sons, Architects

10. Greater appreciation of color and the beneficial effects on the patients of a cheerful "homey" atmosphere in hospitals.

At one time it was a universal legal requirement in the State of Ohio to install elaborate systems of mechanical ventilation in every hospital. These systems were put in at considerable expense; walls were furred out to accommodate the ducts; the system was tested out and then never used again.

Fortunately it has been proved that adequate ventilation can be secured in other ways and the requirements relative to this mechanical system of ventilation have been modified to apply only to toilets and work spaces where natural ventilation cannot be secured.

Therefore, there has been a distinct tendency throughout Ohio to eliminate, or at least reduce to a minimum, all systems of mechanical ventilation save only in places where legally required or where their use is indicated by good engineering practice.

To sum up the hospital situation in the Ohio Valley, there has been a growing tendency in connection with all hospital work to recognize and combat in every logical way the problem of high cost for both building and operating hospitals, and there has been also a growing tendency to appreciate the value of and to use the more enduring materials in hospital buildings, (owing to their long life, and low maintenance cost) rather than to consider some material merely because its initial price is low, regardless of creating a repair and upkeep item which goes on from year to year.

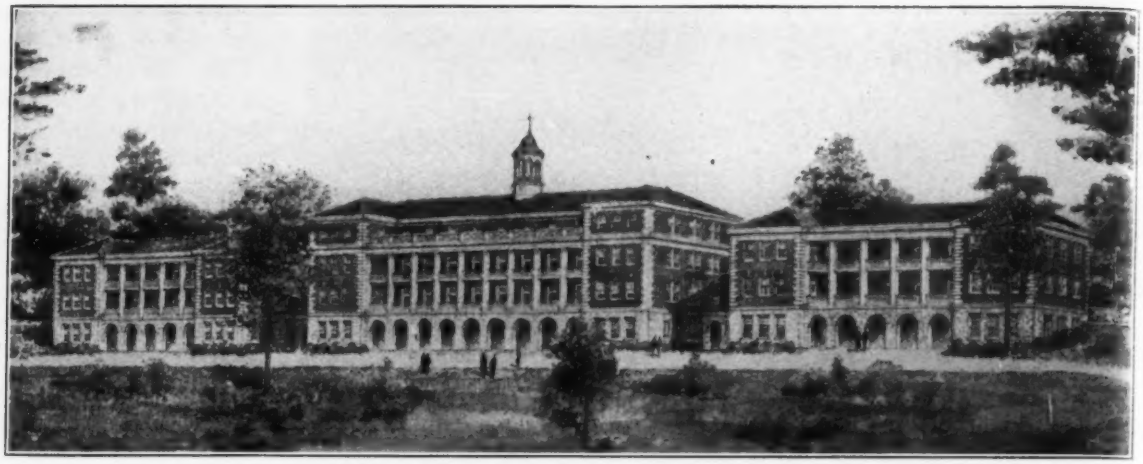
Tendencies in the South

To one who is accustomed to find adequate hospital facilities wherever he goes, a visit to the South will be a revelation. This section of the country, although one of the most promising and progressive in all other respects, is, as a whole, woefully lacking in hospital facilities of any sort.

A great many southern hospitals are poorly planned, wastefully arranged, badly constructed, and underserviced. Then too, it may be said that a great many southern communities have not become "hospital conscious" and are unwilling to admit that adequate hospital facilities are a community responsibility.

There are many instances of private hospitals, built and maintained by the personal funds of some civic spirited members of the medical fraternity, which are in effect community hospitals; doing charity and part-pay work; losing money every year for their owners; receiving little or no aid out of public funds; and being accepted as a matter of course by the communities wherein they are situated.

CHRISTIAN R. HOLMES HOSPITAL, CINCINNATI, OHIO
Samuel Hannaford and Sons, Architects.



THE MARIEMONT HOSPITAL GROUP, MARIEMONT, OHIO
Samuel Hannaford and Sons, Architects, Cincinnati, Ohio.

Manifestly this situation could not continue and one of the outstanding pieces of work by the trustees of the Duke Endowment has been (by offering financial assistance to various communities) to bring about a realization of the fact that hospitalization of its people is a community obligation to be supported by community funds.

Coincident with the above has been a growing tendency to link up public health work with the various hospitals and consequently the dispensary and clinic sections for outpatients is extensively developed (and is becoming increasingly so) in many of the southern hospitals.

Having taken the two most important steps for adequate hospitalization, (*a*) recognition of its need as a community obligation, and (*b*) following the principles that the hospital is the logical health center of its community, there can be no doubt that the tendencies of hospital development in the South will be to establish increasing numbers of well-planned, economically arranged, well-built and efficiently administered hospitals, with due consideration given to future expansion as the public demand grows by reason of greater familiarity with hospitals.

MARY IMMACULATE HOSPITAL

A Visitor—M. C. S.

MARY IMMACULATE HOSPITAL, Jamaica, Long Island, is near completion. There are some very outstanding features for the comfort of the patient shown in this hospital which are the result of careful study, years of experience, and much inspection of the outstanding hospitals in this country.

One very notable feature is the entrance. Much thought and consideration for the patient is shown here. On the outside the patient has only two or three broad steps to climb before he finds himself coming into an unusual and beautiful lobby. There is nothing in the appearance of this lobby that would indicate that it is a hospital. Over the floor is laid a fine oriental rug; there are comfortable chairs and davenports. The walls to a considerable height are faced with marble against which tones of light play in loveliness even on a cloudy day, coming through the stained glass windows on either side of the door. The only person stationed here is the one who gives information. Just through an arched portal, and in easy access is a large noiseless elevator, which means that the patient has but a few steps to walk from the entrance to find himself gently conveyed to the floor of administration, which is the floor above.

A circular stairway of white marble with a bronze railing winds, from either side of the lobby to the administration floor above. This inner stairway affords protection against inclement weather. On reaching the top of the stairs, one sees a statue of Our Lady of Lourdes in white Italian marble, the gift of a friend to the hospital. Turning to the right, one finds the administration rooms beautifully located and planned for greater efficiency in administering to the needs of the sick. These rooms are inspirational to those who work in them. They overlook a beautiful park and the sunshine pours in all day long so that natural light is always available for those who must carry on the burdens of administration for the entire institution.

This splendid arrrangement of the administration department shows not only great thoughtfulness on the part of Sister Eugenia and Monsignor Nummy for those who do the work, but that years of knowledge and experience in this phase of hospital work have taught that the first step in giving the best service to the hospital, and therefore, to the patient, is in the proper and adequate arrangement of rooms which accommodate that part of the personnel, because the best work can be done in the proper environment.

This arrangement of administration rooms on the second floor, and away from the front entrance, spares the patients and the public the annoyance of hearing the din of typewriters, and seeing the rush of work being carried on.

There are many other delightful features about this small exquisite institution which show that it has been built by hearts of love for the sick.

A HOMELIKE HOSPITAL—COLUMBUS HOSPITAL, SEATTLE, WASH.

Joseph Brugman, M.D., Secretary

THE Columbus Hospital was opened in 1916 as the Columbus Sanitarium by Rev. Mother Cabrini, the venerable foundress of the Order of the Missionary Sisters of the Sacred Heart of Jesus. The intention of Mother Cabrini was to conduct it strictly as a sanitarium, a place for chronic and recuperative cases, but with the rapid growth of the city of Seattle and no increase in hospital facilities, it became necessary to admit other than sanitarium cases, and the work of the institute soon changed to that of a general hospital. In June, 1924, the name was changed to Columbus Hospital, although it had been, in reality, a hospital for a number of years previous to that.

The hospital is located convenient to the business center and all points of interest yet, just away from the busy turmoil of a big city. The building is of steel, brick, and cement, absolutely fireproof and soundproof, and has a capacity of 200 beds. The rooms are conveniently arranged, so that every room opens to fresh air, and all are tastefully furnished according to the most modern ideas of comfort and refinement.

All Departments Standardized

In every department, the Columbus Hospital meets all the requirements of the American College of Surgeons. The record of each patient is preserved for future reference in the record department, which is in charge of a registered nurse, who sees that each record is complete in all its details before the patient leaves the hospital.

The equipment is very modern and complete for diagnosis and treatment of any case that might be brought there. There are two X-ray rooms, one for diagnostic purposes, and a lead-lined room for the treatment of cancer and other growths.

The pathological department has been renewed and equipped with the most modern appliances. This department is in charge of an M.D. pathologist and two assistant lay technicians. There is also a new physical-therapy department with all the modern electric heat and light equipment.

The Eighth Floor

The surgery, the pathological department, and the diagnostic X-ray department occupy the eighth floor. Here there are five operating rooms with all the modern surgical equipment for not only general surgery but for special work, such as eye, ear, nose, and throat, orthopedic, and those requiring X-ray work during an operation. There is also a sterilizing room, surgical supply room, doctors' locker room with shower bath, open-air smoking room, and doctors' and nurses' scrub-up rooms. From this floor, access is had to the roof garden, a garden in the true sense of the word, with lawn and flowers blooming the year round, and a view over the entire city, the Pudget Sound, Lake Washington, the Cascade Range, and the Olympic Mountains.

Two new electric elevators are in operation, one for passengers and one for freight. The passenger elevator is run by motor and the freight elevator is operated automatically for the better convenience of emergencies. The freight elevator has front and rear doors. On the eighth floor, on the roof garden, and near the freight elevator, a balcony has been erected for the convenience of convalescent patients who wish to go to the roof garden on wheel chairs or otherwise. This is done in order to allow the patients access to the garden without passing through the surgery.

Modern Arrangements

The wards on all floors are small, none having more than four beds. This gives the patient more privacy and quiet than is possible in a larger ward. The patients' rooms have been furnished by the Sisters with care and taste, keeping in mind the welfare, comfort, and pleasure of each patient.

The corridors running north and south on the surgical, obstetrical, and medical floors which had suites on each end were remodeled. The suites were divided to form a room on each side with the hall lengthened and brought to the end of the building, thus adding light and air to the floor. There are still suites, consisting of parlor, bedroom, and bath, overlooking the Sound and the Olympic Mountains which are furnished in luxurious comfort and which are not surpassed in any hospital in the Northwest.

The sixth and seventh floors are used for surgical cases and the medical cases occupy the third and fourth floors. The fifth floor is used, exclusively, for obstetrical patients and has two modern delivery rooms with a sterilizing room between, a large nursery and a smaller one for isolation of babies with mild infections, and an infant incubator of the latest type. All babies are marked with a necklace having the name spelled out with lettered beads and tied on at birth which cannot, accidentally, be removed, and remains on as long as the child is in the hospital.

The second floor, at present, is used as a dormitory but as the needs of the hospital increase, this floor will also be utilized for the care of the sick. The office, pharmacy, chapel, and the interns' quarters occupy the ground floor.

The whole atmosphere of Columbus Hospital is one of luxurious comfort. The patient at once feels the genial warmth of his reception, and immediately comes to know that his every want will be looked after most satisfactorily by courteous doctors, Sisters, and nurses.

THE EFFECT OF COMMUNICABLE DISEASES ON GOITER IN CHILDREN

United States Public Health Service

The United States Public Health Service has recently announced the results of investigations dealing with the effect of communicable diseases as related to goiter. These studies reveal the following:

1. Thyroid examinations of 589 boys and 636 girls were made before and after communicable illnesses. After the illness, no changes in thyroid size were detectable among 51.7 per cent of the boys and 45.6 per cent of the girls. Thyroid size was decreased in 13.8 per cent of the boys and 11 per cent of the girls. Increased size was noted among 34.5 per cent of the boys and 43.4 per cent of the girls.

2. The thyroids of 1,842 boys and 1,783 girls who did not have communicable illness in the interval were examined one year apart. No change in thyroid size had taken place among 48.4 per cent of the boys and 43.6 per cent of the girls. Thyroid size had decreased in 12.7 per cent of the boys and 18.6 per cent of the girls, while an increase was recorded among 38.8 per cent of the boys and 35.7 per cent of the girls.

3. A communicable disease census of 7,977 boys and 8,441 girls showed little difference in percentage incidence among the thyroid normal and thyroid enlarged children who had the same maladies.

There is some evidence to show that one of the immediate effects of communicable diseases among girls of elementary school age is a simple enlargement of the thyroid gland. However, this thyroid enlargement appears to be temporary in character. A comparatively short time, the length of which is yet undetermined, after a child recovers from a communicable disease, he is no more prone to changes in thyroid size than a child who has not had a communicable disease.

Insofar as elementary school children are concerned, there appears to be no ground for assuming that the ordinary communicable diseases are responsible for simple goiter. The underlying cause of this malady must be sought for in other directions.

Hospital Progress

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GREAT SISTER BUILDERS—PAST, PRESENT, AND TO COME

This March Number of HOSPITAL PROGRESS, devoted to the science and art of hospital planning and building, would be incomplete without some mention of our Sister builders, those women heroines of the Church. It would be unfair not to make some honorary mention of those pioneer builders of our hospitals who have departed this life; as also of the present and coming group of Sister executives responsible for the great hospital development in the United States and Canada.

Would that we had a complete and authentic honor roll of those great women who planned and toiled and saved, while they built those great and small institutions for the housing and curing of the sick. I trust that in some future number we will have such a roll of honor. Sister Innocent of Mercy Hospital, Pittsburgh, will surely be at the top of the list, and many others will be there.

The living Sisters who are known as builders would be another and a larger group still working to make better, more modern structures which they are now guiding and ruling: Sister Joseph of Rochester, Minn., Sister Mary Ann of the Order of St. Vincent, Los Angeles, Calif., Sister Marie of the Misericordia Sisters, Sister Rose Alexius of the St. Joseph's Sisters, Sister Veronica of Mercy Hospital, Chicago, Sister Catherine of Kenosha, Wis., Sister Eugenia of Jamaica, Long Island, and Sister Rose of Mercy Hospital, Pittsburgh. Again we must try to secure a complete and authentic list of the Sister builders still among us.

There is still another oncoming group, let us trust, of observing and developing Sister executives, who will in the years to come take a large part in the further developments for better hospitals, larger hospitals, more comfortable, homelike, and beautiful hospitals. For these the present number of HOSPITAL PROGRESS is especially of value. We need not now compile this list, but let us hope that they themselves through intelligent looking into the future of their community will make this number and succeeding ones a textbook for personal study.

Mistakes have been made in the past, perhaps many of them. Mistakes are being made today, perhaps many of them, but there will be no excuse for similar mistakes being made in the future.

Finally, after we have gathered a list of those that have passed to their eternal reward and a list of those who are the known builders of today, we will expect that at some future day a list will be made up of keen, clever, and enlightened, warm-hearted builders of our future hospitals.

If the architects of today would tell all they know, they would pay high tribute to the Sisters for whom they have worked, because of the many helps and *checks* they have received in the building of their hospitals.

All honor to the women builders of the Church!—*C. B. M.*

THE NEW PHASE OF OUR ANNUAL CLINICAL CONGRESS

The clinical form of presentation has been found the most effective means of demonstration. Its strength has been shown conclusively in our previous efforts. The interest and enthusiasm manifested by the Sisters and other hospital people is proof of this statement.

This form of presentation is recognized as one which produces concrete results, instructive and helpful in a measure beyond the average. The Third Annual Clinical Congress has developed this idea on a wider scale—our slogan is "every booth a clinic." Instead of planning certain clinics and emphasizing them, we are asking each exhibitor in his booth to conduct a clinic of his product or products. We are asking them to be in readiness to explain fully the nature and use of their products. This gives each Sister and all other hospital people the opportunity to learn all about the equipment and supplies used in the hospital. There is no obligation on the part of the Sisters or others to purchase; the purpose of this method of exhibit is to provide the opportunity to learn more about the products entering into the operation of a hospital.

Such an opportunity should not be neglected. The superintendents and their personnel are intrusted with certain funds with which to administer the hospital. Extraordinary care should be exercised in the disposition of such funds. Every reasonable effort should be made to learn what modern improvement, equipment, supplies, and technique have been evolved. The progressive spirit has the urging power to develop more efficient ways and means of accomplishing an end.

Thus it becomes the duty of the superintendent and her personnel to know what is going on, how it is accomplished and what benefits these innovations provide. It may be that by observing one or two factors at a convention you return to your own hospital, institute these new things as part of the administrative policy, and save thousands of dollars. We should not regard this as saving, rather we should regard it as discharging the obligation imposed upon us by our position of trust. By so doing, you are getting the maximum results—giving the greatest amount of service with the funds and facilities at your command. You are not discharging more fully that obligation, because your position calls for the use of all knowledge in the administration of the hospital. This, therefore, simply represents the discharge of your obligation; if by carelessness or lack of interest, you fail to secure this necessary knowledge, you are derelict to your duty and chargeable with neglect.—*M. R. K.*

THOSE WHO HAVE HELPED US

It is usually hard to speak of "those who have helped us" without falling into sentimentality. There is, however, less room for sentimentality in my topic than there is for just, fine, honest, everyday, human and American gratitude.

It is so easy to forget what others have done for us. This seems to be a rather prevalent, human characteristic. But I cannot believe that the Sisters who conduct our hospitals can be guilty of forgetting, overlooking, or neglecting that large body of exhibitors and advertisers, who have during the past 12 or 14 years made it possible for the Catholic Hospital Association to struggle on and up and through the obstacles to the financial success which is now at hand.

Most of the old exhibitors and advertisers are still loyal and helpful. Some new ones are coming along, and we welcome them. May I say with depth of earnest appreciation and truthfullness, that the officers of the Catholic Hospital Association and the Sister members know and respect and appreciate all the help they have brought to the hospital individually and to our organization, by their loyal and sympathetic support.

Of course, it must be said to balance the condition, that our Sisters have been a source of income and of large purchasing value which has made our Convention attractive to those who know, to those prepared to profit by it.

Undoubtedly this year will find many more Sisters than, perhaps, in previous years coming to our Convention with carefully thought-out budgets, and with loyal attitude of mind and heart to make our exhibitors and advertisers understand that, as they have been loyal and helpful to the Sisters, so are the Sisters in this last Convention giving evidence of their respect, loyalty, and support.

How fine a thing it is to put into business relations some of the deeper and more appealing sentiments than mere money-making.—*C. B. M.*

HUMAN LOVE OF BEAUTY

We all love the true, the good and the beautiful—mental, moral, and aesthetic. Our minds cannot be content with the false—our will seeks the good—our aesthetic sense can be satisfied only with the beautiful. Like the terms true and good, the term beautiful is familiar to all.

Normal human nature has God-given capacities to know the true, good, and beautiful and appetites or tendencies which long for what is true, good, and beautiful. There are other things the sight of which arouses no such sentiment, but leaves us indifferent, and others again, the sight of which arouses a contrary sentiment to which we give expression by designating them as commonplace, vulgar, or ugly. The sentiment in question is one of pleasure and approval, or of displeasure and disapproval. Hence, the first fact to note is that the beautiful pleases us, affects us agreeably, while the commonplace or ugly leaves us indifferent, or displeases us—affects us disagreeably.

The civilized world has been and is in quest of these through all the years of effort to achieve its ever-rising ideals.

Scientific, political, social, and religious truths still reckon on sincere and struggling minds:

Moral and religious souls and characters have been and are struggling onward and upward to what is good in human life and its relations:

The perception of beauty, the judgment that something is or is not beautiful is the product of an act of taste of the individual's intelligence affected by numerous things that create personal differences, both of the sentimental and the spiritual order, not only cognative but temperamental and mental. Moreover, besides this variety in subjective differences, we have to bear in mind the effects of artistic culture in educating the taste.

There are also gifted and cultured people today and in every generation of the past who have perceived the beautiful things of nature and of art, who have been gospellers of beauty to their fellowmen, because of their vision of the holy grail and their single-minded forgetfulness of self in their struggle and toil to grasp and bring to earth the ever-receding object of their passionate desire—beauty for men, for all men, but especially *for the sick.—M. C. S.*

RECOMMENDATIONS ON CHARITY BY MICHIGAN MEDICAL SOCIETY

Two years ago the Michigan State Medical Society appointed a committee to study medical charity in the state. This committee has made its final report. The part of the report dealing with community hospitals is summarized as follows in the Journal of the American Medical Association:

After a comprehensive study, the committee reached among others the following conclusions with regard to the financing of community hospitals: 1. The cost of interns' maintenance seems a proper one for the patient to bear, but any extraordinary educational expense may well be placed elsewhere. 2. Patients now bear practically all of the cost of the training school for nurses, and a part of this burden at least should fall on other shoulders. The special nurse is one of the major expenses of hospital illness and the nursing school should seek to relieve patients as far as possible from the burden of the "special." 3. The original cost of buildings and additions and other capital expenditures for a hospital should be provided from outside sources. 4. Outpatient department costs, if carried at less than maintenance, should not be a general hospital burden to be borne by the patients. The committee believes that it is sound economics for the patient to pay the cost of the particular accommodations that he occupies and his extras, and that patients in better accommodations should not pay any part of the way of those in simpler ones. In the last analysis, the judgment of the physician as to whether the patient is entitled to the charity or part charity that is contemplated should be paramount in the decision, and both the hospital and the profession should recognize his right to make an adverse decision; it is his duty, however, to go over all the data pertaining to the patient's finances before passing hasty judgment.

Advertises for Endowments

The Tablet, the well-known Catholic weekly of Brooklyn, N. Y., carried in its issue of Nov. 3, a full-page advertisement requesting endowment of rooms at Mary Immaculate Hospital, Jamaica, Long Island.

The advertisement, together with its appeal, gave a list of persons who have already made memorial subscriptions and a list of rooms that may be endowed, including kitchens, offices, laboratories, etc. The costs range from $600 for a linen room to $10,000 for a main operating room or main kitchen.

IV. Discussion of Particular Features

Hospital Elevator Service

E. Hollander, New York City

BEFORE arriving at any conclusion concerning the elevator equipment best adapted for hospital service, consideration must, of course, be given to all of the factors commonly involved in the same problem in connection with any other building. In addition, however, particular consideration must be given to the extra requirements dictated by the conditions peculiar to institutions devoted to the care of the sick and injured.

Reliability, for instance, is a requirement demanded of all elevator installations—but the failure of one or more elevators in an office building or factory involves nothing more than inconvenience or financial loss, while in a hospital, it may endanger a human life.

Quietness and smoothness of operation are desirable under all circumstances and their lack, normally, is a just cause for irritation and dissatisfaction. In a hospital, however, these characteristics are imperative and their absence the cause not of irritation, but of agony.

In office buildings, sanitation is ordinarily subordinated to appearance, and ornamental cars are the common rule, while in hospitals, the demands of rigid sanitation take justified precedence over everything else and dictate the use of cars of special design involving little or no ornamentation.

It is evident, therefore, that the problem of providing hospitals with the best possible elevator service deserves and requires careful study. Hospitals, however, vary so widely in nature and size, ranging from the small general hospital of two or three floors, to the imposing skyscrapers necessitated by restricted ground areas in the larger cities, that no attempt can be made within the scope of this discussion to do more than outline some of the precautions to be observed and some of the types of elevator equipment particularly adapted to hospital service.

Each building has specific requirements, depending upon its planning; viz., location of street entrances, corridors and passageways, pavilions, private rooms, wards, number of beds, operating and clinical rooms, roof sun parlors, and also the needs for administrative purposes.

The problem of the proper number and type of elevators, size and shape of cars, location and grouping, and method of control, is an engineering problem that requires careful consideration for each individual building, and no universally applicable recommendation can be made.

Quietness Essential

It is essential that quiet operation be obtained and provision made in the installation so that should any noise or vibration occur in the machine room, it will not be transmitted to sleeping rooms, or other parts of the building where noise or vibration would be objectionable.

Elevator hatchways should not be adjacent to sleeping rooms and machine foundations should be kept away from steel framing, column footings, grillage beams, and building walls. The machine foundations should be sufficiently massive to absorb vibration and should be separated from the building structure by means of special sheet cork, to prevent the transmission of vibration through the building Controllers and starters should also be set on special sheet-cork pads.

Self-Leveling Necessary

Elevators should be of the self-leveling type to insure that each car will automatically stop level with the floor landings, regardless of load or speed, and will maintain its level with change of load and stretch of ropes. Self-leveling elevators eliminate the tripping hazard at the floor landings, which is essential in hospital cars where it is necessary to carry invalids and patients on stretchers or wheel chairs. Self-leveling is accomplished by means of an auxiliary machine, or by means of leveling through the main motor.

Machines of the traction type, either geared or gearless, are used, depending upon the duty of the elevator. The machine, in either case, should be of the self-leveling type, for this type of service. The geared single-wrap traction machine employs a worm gear reduction between the motor and traction driving sheave, permitting the use of a moderate-speed motor. These machines are adapted for car speeds up to 250 to 300 feet per minute. The gearless traction machine, as its name implies, does not employ a gear reduction. The traction driving sheave is mounted directly on the armature shaft of an extremely slow-speed motor, resulting in an elevator of very high efficiency and absence of vibration.

In hospital buildings proper, the elevator cars should be of such size and shape to receive a stretcher or wheel chair, in addition to the attendants or nurses.

Maximum Load Requirement

The maximum load should be a function of the floor area and rated on a basis of 75 pounds per square foot, which is based on an average person occupying two square feet and weighing 150 pounds. This condition is generally covered by code in various states and cities, although in the past, loads were sometimes rated on a lower basis, on the theory that the car would be required to handle only a stretcher and patient, together with operator and nurses. In view of the fact that the car may be fully loaded during periods of visitors' hours, clinics, lectures, or demonstrations, etc., it is essential that the rated maximum load be based on passenger loadings. This is also a necessary precaution so that in case of fire, panic, or other similar hazardous conditions that may arise, the elevators may be of sufficient capacity to handle the maximum passenger loading.

In the larger hospitals and medical centers, in addition to elevators designed to handle stretchers, smaller-size cars are also installed for the special needs and requirements of the building.

Elevators are installed to operate from either direct or alternating current supply, using either resistance or voltage control. Resistance control is used with slow and moderate car speeds with geared machines. For speeds of 200 feet and over, voltage control is generally used with these machines. For gearless machines, resistance control has practically been eliminated by voltage control.

Voltage control employs an individual motor-generator for each elevator and the elevator motor is controlled by varying the generator field. All perceptible steps of acceleration are eliminated and the result is exceedingly smooth operation, rapid acceleration and retardation, and low power consumption. Because of the smoothness of operation obtainable with voltage control, it is especially desirable for hospital service. It has the further advantage that it can be furnished with a power supply of either direct or alternating current and is applicable to either geared or gearless machines.

Forms of Control

The forms of control used are either a manually operated switch in the car, or various types of automatic push-button control; the trend is toward automatic operation, such as single automatic push-button, collective automatic and signal control.

The type and method of control depends upon numerous factors, such as size, height, and location of building. The following types of automatic control are particularly adapted for hospital elevators:

Single automatic push-button control, with manually operated car gate and hatchway doors.

Single automatic push-button control, with movable platform, or electrically operated car safety gate and manually operated hatchwy doors.

Collective automatic control, with movable platform and manually operated car gate and hatchway doors.

Collective automatic control, with electrically operated car safety gate and manually operated hatchway doors.

Automatic signal control with manual or power-operated car and hatchway doors.

With single automatic push-button control, a single push button is provided at each landing, and a full bank of buttons in the car, corresponding to the various floors, car gate with electric contact, electric interlocks on each hatchway door, together with a retiring cam on the car.

The pressing of a hall button will bring the car to the floor landing, provided the car is not in use, and all hatchway doors are closed and locked, and the car gate closed. When the car stops at the desired floor, the passenger, on entering the car, and after the hatchway door and car gate have been closed, presses the car button corresponding to the floor desired, and the car proceeds and stops level with the floor.

When the service is such as to require an operator only part of the time, an operating switch is provided in the car, in addition to the push buttons, in which case, by means of a throwover switch, the push buttons in the hall are electrically connected to an annunciator in the car. This is known as dual control.

It is recommended that all hatchway doors be equipped with door-closing devices, which open manually, and close automatically, when released. The use of door closers insures the closing of the hatchway doors and also prevents slamming.

Equipping the car with a movable platform, permits the car to respond to a hall call, when the car gate is left open, provided the hatchway doors are closed and locked and no one is in the car. When electric gate operators are used, the car gate should be of the safety type, which is constructed with parallel vertical bars, connected by links. The safety gate eliminates the "shearing hazard" action of folding gates.

The service obtained with single automatic push-button control, as just described, is limited, as the car responds only to the first button pressed and does not stop when in transit for other waiting passengers. They can only obtain the car when it is not in use.

Collective automatic control overcomes the disadvantages of single automatic push-button control as the car collects all calls made at various floors and stops in response to the pressing of either the up or down hall buttons, provided the car is traveling in the desired direction, and the buttons pressed in advance of the car reaching the floor.

The car also stops at all floors for which car buttons have been pressed and in the order that these floors are reached, irrespective of the sequence in which the car buttons have been pressed. Should the car be fully loaded on its descending trip, it will automatically pass floor landings for which down calls have been made, but will collect such calls on its next descending trip. It is necessary to press an up or down hall button only once; the car will always respond to the call.

TYPICAL HOSPITAL ELEVATOR OF SANITARY DESIGN

After the car has answered all calls and discharged the last passenger, it will either remain at the floor where it last stopped, or automatically return to a predetermined "home station," as may be desired.

Collective automatic control speeds up service, as it provides for interfloor traffic and can be installed for high car speeds. It provides all the desirable characteristics of single automatic push-button control, plus the traffic handling capacity of a car-switch-controlled elevator, but eliminates the necessity for an operator.

If the service is such that it is desirable, during a part or all of the day, to put the collective control elevator in charge of an operator, a key-operated switch is provided, which, if the door is open, will cause a buzzer to sound when a hall button is pressed. The operator then closes the door and the car responds automatically to the call. A key-operated switch also permits the operator to by-pass all calls when desirable as, for instance, when the car is filled with a stretcher and patient, or when it is desirable to make a nonstop trip from the ambulance entrance to the operating room. All calls remain registered until answered, and the car will respond automatically to all such calls, after the operator has released the nonstop switch.

More Than One Car

For buildings where the requirement of service is such that the use of more than one collective-control elevator is desirable, these elevators may be located in pairs, which permits a very flexible arrangement. Upon the pressing of an up or down hall button, only one car responds to the call, but as soon as the service becomes more intense, and after a predetermined number of hall buttons are pressed, the second car is automatically brought into service, so that during this period both cars take care of the service—the car nearest the floor at which an up or down button has been pressed, and traveling in the desired direction, answers the call. After the service has again become normal, one of the cars is automatically cut out of service and remains at the floor at which it last stopped, or returns to the "home station" as desired.

For the skyscraper type of hospital or medical center, where elevators are required to operate at high car speeds, automatic signal control is desirable. This type of control is as automatic as high-speed elevators for intensive service can be made, and almost entirely eliminates the human element from the control.

Signal control is used with gearless traction, self-leveling, voltage-control elevators. The elevators are located in groups, depending upon traffic requirements, and provided with up and down push buttons at floor landings for each group, and signal lanterns on each floor above the car entrances.

With signal control, the attendant in the car merely presses the car buttons for the passengers and initiates the starting of the car by movement of a switch lever in the car-operating panel.

A waiting passenger, upon the momentary pressing of an up or down hall button causes a car to stop at that landing, instead of simply signaling the attendant in the car. Passengers, upon entering the car, advise the attendant of their desired destination and, regardless of the order in which he presses the buttons in the car, it will stop in proper sequence at the floors for which buttons have been pressed, and the stop will be level with the floor landing.

When at the terminal landing, the attendant receives a signal from the dispatcher to start the car, he moves the small switch handle in the car-operating panel, which causes the power-operated car and hatchway doors to close. The instant these doors are closed, the car automatically starts and proceeds on its trip, and when it approaches the first landing for which a button has been pressed, either in the car or at that landing, it automatically slows down and stops level with the landing. The car and the hatchway doors open automatically while the car is leveling. After passengers leave or enter the car, the operator moves the small switch handle, causing the car and hatchway doors to close, and again the car starts and automatically stops at all floors at which car or hall buttons have been pressed.

Should a car be behind in schedule or fully loaded, the operator, upon pressing the "nonstop" button in the car-operating panel, permits this car to pass the landing for which a hall button has been pressed. In this event, the signal remains registered and the call is automatically transferred to the next car traveling in the desired direction, which will answer the call.

With signal control, when a waiting passenger presses a hall button, the nearest available car will always respond to the call, which is not always the case with the older method of signaling to the operator in the car, where the stopping is dependent upon his "whims" or upon his knowing that the signal has been given.

As the car approaches the landing at which it is to stop, a signal lantern automatically illuminates, indicating to the waiting passenger which car will stop in response to his call. The signal light is automatically extinguished the instant the car leaves the landing.

When the car arrives at the terminal landing, its direction of travel is automatically reversed after stopping.

A switch is provided in the car-operating panel, by means of which the attendant in the car may reverse the direction of travel of the car, without completing the full trip, should it be desired.

If, for any reason, it is desired to operate the car at a reduced speed, especially in case the car is traveling ahead of schedule, the speed of the car may be reduced by means of a "slow speed" switch provided in the car-operating panel.

Sanitary Construction

The cars should be of sanitary construction, having coved bases and round fillets, eliminating all square corners, if possible, so as to facilitate cleaning, and to prevent collection of dirt. The finish of cars should be light in color.

It is also advisable to install elevators for service and freight use, the size, type, and control depending upon requirements of the building.

Automatic dumb-waiters should also be provided for conveying food from dietary kitchens, etc., to the various floors. The number of dumb-waiters and their location, together with size, load, and speed, depends upon the arrangement of the building, number of floors, and the service requirements.

Color Harmony in Hospital Lighting

Mrs. Mary Wren Steward, Director Home Lighting Bureau, Union Gas and Electric Company, Cincinnati, Ohio

TO EVEN the most casual observer, a review of lighting and illumination developments in the past few years reveals the rapid strides that have been made in this line by the artist and interior decorator, as well as the more publicized advances that have been effected by the electrical engineers themselves. Persons in every walk of life are confronted by them: on the street, as witness the park and boulevard lights that are coming rapidly into vogue, and which are quite pleasing to the eye; in the stores, where we find artistic and restful indirect lighting equipment more conspicuous by its absence than by its presence; in the theaters, and in our public buildings, where soft and harmonious effects are in general usage, and where, were this not the case, one would immediately presume a most serious shortcoming on the part of the architect.

As these methods of lighting have become more widespread, and the improvements have sifted into almost every home in one form or another, it is singular to note that, as a class, the scientific branches of work have been slowest to take advantage of the new era in lighting. Although it has undoubtedly profited a great deal by modern lighting conditions, the medical profession, particularly, has still greater opportunities to avail itself of the latest developments, than has, unfortunately, been the case in the past.

In the case of hospitals, the general observation is that, as a class, they are far behind other types of buildings in adequate lighting. This is indeed a most unfortunate situation, for proper lighting is probably, for obvious reasons, more important here than in almost any other public institution. Due to its reaction, the patient, when proper lighting is arranged, rests comfortably and is helped to regain normal health more quickly; and the nurse and physician are able to perform their duties more efficiently and with less annoyance to the patient.

There is no question but that a homelike atmosphere is conducive to general pleasantness and quick recovery. Lighting which adds to the attractiveness of the room besides meeting the utilitarian requirements, exerts a psychological influence beneficial to the patient. In our homes, we have found that there is no one thing that adds more to a charming, restful environment than well-shaded and efficient lighting equipment. If we are to bring a touch of aesthetic charm into the hospital we cannot fail to give lighting its due consideration.

Principles of Lighting

Before we can have beautiful light, however, there are two principles we must follow: One is the principle of glare. The sun is blinding, if we look directly at it and in the same manner, an electric lamp is also harmful; even though it is incomparably less bright, it is much nearer the eye. Therefore, all light sources should be shaded. Some people have the idea that a room can be too brightly light-

ed. This is a false idea, for light out of doors on a sunny day is thousands of times brighter than a room lighted artificially, but what probably *is* true, is that unshaded light sources produce glare, which is annoying.

Insufficient light is very harmful whether it be artificial or natural. If we try to read at dusk, we are straining our eyes; likewise if we try to read with an insufficient amount of illumination, we are imposing a double tax upon our eyes, which are one of God's divine gifts and cannot be replaced. It is even more important for us to observe these rules in the hospital for the eyes of the patient are in a weakened condition. Let us then have light of high intensity that will be sufficient to read or work by, but yet have it shaded, or in other words, controlled. Electricity is just another raw commodity such as meat or vegetables, and must be prepared or dressed before it is ready for use.

Desirability of Color

In the predominant use of white, there is the suggestion of the Arctic Circle, cold, bleak, barren. White walls, white curtains, white screens. Even the little lamp clamped to the head of the bed and clothed in hard white metal surrounds the patient with an aura of coldness. Today in private and semiprivate rooms especially, there is a reaction against the use of white and in favor of color.

Bringing color harmony into home lighting is a far simpler matter than bringing it into the hospital. In the former case, we have access to shades of many textures and designs, while strict utilitarian requirements, as well as asthetic considerations, must be considered in the latter. There are on the market today, however, shades of glass that do meet the utilitarian requirement and yet have the softness and restfulness of silk. Often this glassware uses only a band of harmonizing color for its decoration, while others employ floral designs. These floral designs are in soft shades while the design itself is small and indistinct, giving the patient no cause to "trace" the lines as is often the case in more set patterns.

For general illumination, there are semi-indirect units that are made of a combination of glass, porcelain, and metal, easily cleaned and, at the same time, highly decorative. The disc through which the smaller portion of light is diffused and sent downward is made of amber glass—dense enough not to annoy the most restless patient. The deflector comes in any of the soft shades which will harmonize with any color scheme.

Varying Requirements

Let us consider the lighting equipment according to the particular exposure of the room. Rooms that are so situated that they receive a great deal of natural sunlight need a color treatment that will tone down this excess light. If a soft green color scheme is employed, the semi-indirect unit mentioned, with deflector of ivory, will be particularly pleasing. With soft gray walls the deflector of green would harmonize. There is a false idea that if a certain hue is to dominate that *everything* in the room must be of that color. What would be more monotonous than green walls, green draperies, green upholstery, and fixtures also of that hue? If, however, there is very little wall space and it is decorated in soft green, the lighting unit with the green deflector would not tend to make the room appear monotonous.

Because bedside table lamps are often in the way or because the light often throws its beams into the eyes of the reader and not upon the reading matter as desired, this form of local illumination is often omitted. In its place may be substituted properly shaded wall brackets, one on each side of the bed. Recently there have been developed several good semi-indirect wall brackets. These are so well suited for use in hospital rooms that they will undoubtedly be widely adopted for this service.

Shades for all local illumination should have a light yellow or amber color for their background, as this color is the most pleasing and restful to the eye. Color accents to harmonize with the particular color scheme may be brought out in the trimming. For the room that has a cool color scheme, wall brackets may be of plain amber glass or have bands of harmonizing color.

Portable lamps, either bridge or junior floor lamps, are provided for the guest chair. If the walls and draperies are plain, the shade on this lamp may have a small figure to keep the room from being monotonous. The writer has in mind a simple parchment shade with a border of violets and crocuses. What would be more appropriate in this room which receives the hot summer sun than these dainty flowers that bring to one's mind the coolness and freshness of the woods?

Dresser lights may be added advantageously depending upon the luxuriousness of the room. These should always be used in pairs and be high enough to light the face well. Too often, lights of this type are so low that the light shines directly into one's eyes, instead of performing its function of lighting the face.

For Dark Rooms

On the other side of the building may be located rooms that are not so fortunate in the matter of receiving sunlight. Using gray or green in these rooms as a color scheme would tend to make them doubly depressing, but employing warm yellow may bring a touch of natural sunlight. Yellow, however, covers a variety of hues from greenish yellow to deep yellow, verging upon orange. Its hue and tint are very important for it can be sickly or billious, the very hue that would tend to distress the patient instead of cheering him. Here the background of the lighting equipment may take on a warmer tint of yellow than we employed with our green color scheme. The glassware in these rooms may employ a narrow band of very light orange in its decoration. Too deep an orange may be over stimulating. In no case should the background for shades ever be blue. This color is permissible only in a small amount of trimming.

All lamps should have light linings, as deep rose and orange linings will absorb between 70 and 80 per cent of the light. For example, if a patient were reading by a 60-watt lamp whose shade had a rose lining, that lining would be absorbing approximately 45 watts and the patient would be reading by only 15 watts. In the patient's weakened condition, this strain on the eyes may have serious results.

As concluding generalities, let all light sources be well shaded, all shades for reading or writing have a light yellow or amber background and also a light lining, and the utilitarian, as well as the decorative requirements will be met.

A CORRECTION

Developing and Maintaining Intra-Hospital Contacts was the title of a paper appearing in the January issue of HOSPITAL PROGRESS. This paper was prepared by Sister M. Frances Clare of St. Anthony's Hospital, Hays, Kans. The paper was erroneously credited to another author.

Hospital Issues Annual Report

The Sisters of St. Savior's Hospital, Portage, Wis., have issued the annual report of the hospital as follows: Surgical cases, 855; medical, 167; obstetrical, 119; outpatients, 386; total number of patients received, 1,527; deaths, 38; charity cases, 55; part-charity cases, 47; and total number of patients remaining at close of year 1928, 24.

Dedicated to St. Agnes

The first Catholic hospital in Fresno, Calif., is nearing completion. It has been named St. Agnes Hospital. On Jan. 21, feast of St. Agnes, Rt. Rev. Bishop Mac Ginley, blessed the building and dedicated it to St. Agnes. The formal dedication will take place in April.

Refrigeration in the Hospital

George Smedal, Dayton, Ohio

REFRIGERATION, always protecting the health of the individual, is his staunchest ally when he is attacked by disease. Hospitals, quick to adopt new and proved methods of combating disease, have enlisted the latest developments of the refrigeration industry in their never-ceasing struggle to aid the sick.

Health authorities realize that putting a box or cooler in the kitchen no longer constitutes proper refrigeration. Fluctuating temperatures, formerly one of the most serious problems confronting those engaged in the battle against disease, have been conquered by automatic refrigeration. Today refrigeration is as important in the minds of planners and builders of hospitals as proper lighting in operating rooms.

Today modern hospitals equip every department with a wide range of refrigerating equipment, adapted not only to general use, but also to special functions. There are large coolers in the main kitchens for storage and preservation of provisions for the entire hospital. Refrigerating units are found in the X-ray room and pathological laboratories. Throughout the entire institution are water coolers providing a constant source of cool, palatable water for patients and nurses. The vexing problem of garbage disposal has been solved by refrigeration and even in the mortuary will be found automatically cooled chambers.

Perhaps the ideal manner in which to present this modern viewpoint of the necessity of complete refrigeration is to detail a typical installation, considering the equipment used and the results obtained.

The Halifax District Hospital at Daytona Beach, Florida, erected at a cost of $700,000, is accepted as one of the most modern and completely equipped institutions in the United States. Its refrigerating equipment is especially interesting.

In the main kitchen of this hospital are four built-in coolers. Food is purchased in larger quantities at a big saving in cost as well as time. In this kitchen one cooler is used for meats, one for fruits and vegetables, one for dairy products, and the fourth for leftovers and miscellaneous items. This method of refrigeration insures dry atmosphere in the coolers, no food odors, elimination of spoilage, and the constant temperatures provided keep foods over long periods of time. The meat cooler is kept at a temperature of 38 degrees, the fruit and vegetable cooler between 48 and 50 degrees, dairy products at 45 degrees, and the miscellaneous cooler at 45 degrees. Four compressors serve these boxes which are located on the second floor of the building. The compressors are installed on the ground floor. In the main kitchen will be found also a smaller cabinet for use as a daily service box to keep the day's supply of milk, cream, butter, and meats. Thus it becomes unnecessary to open the larger coolers so frequently and reduction of temperatures through heavy service is avoided.

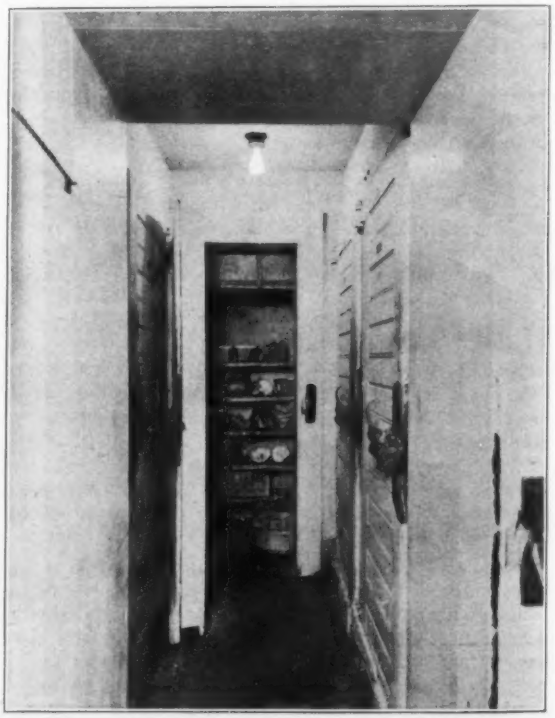
All food in the Halifax hospital is prepared in the main kitchen and taken on insulated wagons to serveries. The seven servery refrigerators are especially helpful to nurses on duty at night, as the main kitchen is then closed. In these refrigerators will be found eggs, milk, broth, castor oil, milk of magnesia, creams, lemons, oranges, vaccines, custards, gelatin, glucose, mineral water, special foods which relatives or friends of patients bring in as well as antitoxins. Only with automatic refrigeration can such a large variety of items be safely kept in one cabinet.

There are eleven automatic water coolers scattered throughout the building serving both the Halifax staff and patients. Each cooler is provided with a bubbler and glass filler. Water is conserved by eliminating the necessity of running it for a long time to cool it. This is an important feature in warm climates. These coolers maintain water at a temperature of 40 degrees.

A refrigerating unit is used in the X-ray dark room to cool water used in developing films. In Florida, many water pipes lie close to the surface of the ground. During the summer the coldest running water is too warm for darkroom use. Here a constant degree of temperature in water is absolutely necessary for the developing, fixing, and washing tanks. To overcome the difficulty a small unit is utilized for a steady flow of cold water. This has eliminated the worry about loss due to the running of gelatin emulsion from the films and thereby the danger of destroying a valuable record. From the standpoint of both the patient's welfare and as legal evidence, this department is particularly anxious to preserve carefully all films in the process of developing. A temperature of 65 degrees is maintained in the developing, fixing, and washing tanks. This method insures high-grade and uniform results in the development of films.

One of the most important uses to which automatic refrigeration is put in a hospital is in the pathology laboratory. Here ice cubes are used in connection with the preservation of body tissues submitted for microscopical examination. As is known, it is essential that the paraffin poured over the slides be cooled immediately to make the paraffin pliable. Slow cooling makes it brittle.

Automatic refrigeration has been found especially valuable in the preservation of blood specimens. With fluctuating temperatures, the change in the chemical composition of blood comes within 10 to 12 hours. With the new method of refrigeration, specimens can be kept safely for 48 hours or more.



FOUR LARGE BUILT-IN COOLERS AT THE HALIFAX DISTRICT HOSPITAL, DAYTONA BEACH, FLA.
—Courtesy, Frigidaire Corp.

EXAMPLE OF UNIT SYSTEM OF REFRIGERATION COMMONWEALTH ANTITOXIN AND VACCINE LABORATORY, BOSTON, MASS.

Another of the more important uses of automatic refrigerating equipment in this hospital is the preservation of vaccines and antitoxins. It is essential that antitoxins keep their original strength, and this is assured by the equipment installed in the Halifax hospital. The pathology laboratory of this hospital has fostered and utilized to a considerable extent, autogenous vaccine in the treatment of bacterial diseases and infections. Automatic refrigeration has proved invaluable in this work by providing the uniformly cold temperatures that are necessary in the development of the various cultures. Constant and low temperatures provided, prevent contamination during the process of development, and nonfluctuating temperatures insure uniform potency.

Complete automatic refrigerating equipment has been installed in the Commonwealth Anti-Toxin and Vaccine Laboratory at Boston. So satisfactory was the original equipment installed that when additions were built to the laboratory, three cool rooms were included in the original plans. In discussing the advantages of the system installed, officials of the laboratory declared that it obviated the shutdown of the entire refrigeration system in case of a mishap by having several units instead of one on duty. In addition, the small unit system does not require the attention of an operator. Among the many uses to which this equipment is put in the Boston laboratory, besides general storage, storage for products about to be shipped, storage for horse blood and low-temperature storage, is the utilization of a six-hole ice-cream cabinet in which smallpox vaccine virus is kept at a temperature of about 9 degrees Fahrenheit.

Even the vexing problem of garbage disposal has been solved by the installation at the Halifax hospital. On the scrap table in the main kitchen, is located a circular hole six inches in diameter through which the garbage is scraped. This goes down a chute to a can below. The garbage freezer room is nine feet seven inches high, eight feet one inch deep, and four feet one inch wide. It is accessible from the outside. There is a heavy door that closes immediately on the freezer room and there is the outside door. This method of garbage disposal is accepted as the most sanitary and efficient. Freezing prevents odor and putrefaction. A temperature of between 24 and 28 degrees is maintained in this room and the garbage is removed daily.

The mortuary-cooler is used to keep bodies on which autopsies are to be performed. This cooler has six chambers and each chamber is provided with a metallic tray that slides in and out on rollers. A temperature of 34 degrees is maintained, and hospitals where this type of installation is in use report it of incalculable value.

The field for electric refrigeration is growing daily. An example of the diversification of uses to which such equipment can be put is found in the Keystone Athletic Club at Pittsburgh. The system in this 21-story building, includes a circulating water system, numerous special boxes, ice-cream cabinets, ice-cream makers, ice makers, and the usual run of refrigerator boxes. One of the largest installations of circulating water systems is being placed in the capitol building at Havana, Cuba. More than 8,000 feet of piping are used.

It would be impossible to discuss refrigeration and all its applications in a few thousand words. Its varied uses are becoming better understood each day. But there are certain important factors regarding selection and installation of equipment that must be considered.

Purchase of equipment as well as its selection should not be hurried. Service needs must not be forgotten. Construction of all the various parts of the equipment included in the system should be carefully studied as well as initial cost, flexibility, reliability, and operating costs. Reputable companies engaged in this industry maintain large staffs of engineers who not only can supply this information, but will conduct a careful survey of refrigerating requirements and recommend the proper equipment.

The operation of the refrigerating equipment described is simple and automatic. It is based on the well-known fact that the evaporation of a liquid into a gas produces refrigeration. The gas is then compressed back into a liquid form and used over and over again.

AN AUTOMATIC WATER COOLER AT THE HALIFAX DISTRICT HOSPITAL, DAYTONA BEACH, FLA.
—Courtesy, Frigidaire Corp.

Hospital Power Plant as an Important Factor in Building

Henry L. Eastman, Chief Engineer, St. Mary's Hospital, Green Bay, Wis.

ST. MARY'S HOSPITAL, located at Green Bay, Wisconsin, consists of five brick buildings: Hospital, (100-bed capacity) four stories and basement, with Sisters' apartments on the fourth floor; chapel and offices; nurses residence, three stories; mothers' and infants' home; and finally, power plant and laundry, modern in every respect.

Contrary to hospital practice in smaller cities, St. Mary's has a modern power plant in keeping with the rest of the establishment, which supplies the necessary power, light, heat, and hot water. It has many special features which may be of general interest.

The electric load is carried by a recently installed d.c. engine, connected to an a.c. generator, three phase, 220 volts. This unit supplies all needed current for motors and light throughout the various buildings. Motors drive elevators, laundry machinery, pumps, and ice machine.

Laundry machinery consists of washers, motor-driven extractors, dry tumblers, presses, and mangles, all with remote controls mounted on a switchboard with a switch for each circuit. This switchboard is also connected with city power and light for emergency.

Refrigeration is taken care of by one 10-ton ice machine with slow-speed compressor, vertical single-acting type, using double-pipe condensor. This machine cools three large refrigerators, one sharp freezer for meat, also an ice-making tank with a sufficient surplus of ice. The tank is connected with a brine-circulating pump, which cools refrigerator boxes on hospital floors.

Drinking fountains throughout the institution are connected to a water-cooling system with a circulating pump which keeps cold water at all times at the fountains.

The hospital is heated by a hot-water circulating system through converters, by exhaust steam. Other buildings are also heated by exhaust steam with vacuum return system. All exhaust steam passes through oil separators to keep oil out of the heating system and at the same time to keep oil from entering the boiler with feed water. Two 6 by 18-foot horizontal return tubular boilers were considered ample provision for the steam demand of the plant. Saturated steam at 120 pounds pressure is generated. The boilers were equipped with shaking grates, and for a time hand fired. To maintain capacity, it was found necessary to use egg coal rather than the cheaper grades. Owing to a varying load, the pressure varied considerably and the smoke produced brought complaints from the city. To improve these conditions and eliminate smoke, mechanical means of feeding the coal were considered.

Lack of head room prevented choice of overhead hoppers, so that the selection settled on an automatic underfeed stoker designed to distribute the fuel evenly over the grate surface. With this equipment we are now able to operate our plant with one boiler. A continuous light feeding of fuel is maintainel, closed fire doors reduce admission of excess air into the furnace. This feature, in conjunction with continuous feeding of small quantities of coal, has reduced the smoke to a satisfactory degree. It is now possible to burn finer and cheaper grades of coal. Stoker and fan are operated by a regulator. Administrators who fail to recognize the economy of this device, consider the initial expense and overlook the added salary of an extra hand in constant service during 24 hours of the day.

The controlling factor is the steam pressure and this is held within a range of three pounds. Boilers are also equipped with automatic-feed water regulators, high- and low-water alarms. This provision gives practically a constant water level at all times. It is entirely automatic and with automatic control of the coal feed as well, uniform conditions favorable to economy are maintained throughout the daily operation.

For the design and general layout of both laundry and power plant, much credit is due to the Mother Superior of the institution, working in cooperation with the engineer in charge.

It is obvious that a competent, interested engineer, who is fortunate enough in securing the cooperation of the superintendent and board of trustees, may add materially to service and economy.

UTILIZATION OF FUEL WITH A VIEW TO ECONOMY

S. R. Lewis

FUEL is used in hospitals, of course, primarily to keep the hospitals warm. Secondary uses are for cooking, hot water, laundry, and sterilizing.

The first important consideration is to build the walls and ceilings of the hospital of such materials that heat will tend to be retained.

A comparatively recent development in the art of building inclosures for human habitation is the use of insulating and air-stopping materials in the walls and ceilings.

An ordinary brick wall 13 inches thick, for instance, plastered in the usual way directly on the brick work, will transmit in zero weather with 70 degrees inside, 18.4 heat units per square foot per hour. This will be reduced to 12.9 if the wall is furred out on the inside, so as to leave an air space, and if provided with one of several types of comparatively inexpensive insulation the wall will transmit only about 8 heat units per square foot per hour. Taking an ordinary room about 12 x 12 x 10 feet with one window, the uninsulated room would require 31 square feet of ordinary radiation, while the insulated room would require only 21 square feet of the same radiation. On the reasonable presumption of 80 pounds of coal per square foot of radiation per season the insulation would save 800 pounds of coal per season for this one room.

In many hospitals, the top story is prone to be cold in winter and hot in summer, due to failure properly to insulate the ceiling of the top story, or the roof.

An ordinary plastered ceiling will transmit 9.8 heat units per square foot per hour if the ceiling is at 80 degrees and the attic is at 40 degrees. In the same room, 12 x 12 x 10 feet as mentioned before, such a ceiling condition would make it necessary to add 6 square feet of radiation or 20 per cent to that required for the same room on an intermediate story. Such a room would be very hot in summer. This difficulty could be reduced nearly to the vanishing point by applying insulation.

If there is no attic space and the roof is of concrete say 6 inches thick, plastered directly on the concrete, the heat transmission easily may amount to 40 heat units per square foot per hour, and if we put enough extra radiation in the room 12 x 12 x 10 feet to overcome this we must add 25 square feet and must burn 2,000 pounds of coal extra per year for each such room beyond the coal required for the same room on an intermediate story.

Insulation easily can be installed to overcome this extra loss, and as a general thing the insulation will very nearly be paid for by the saving in first cost of the radiators, piping, and boilers.

An interesting corollary to the installation of insulation in ceilings is that the attics above these ceilings become very much colder as a result, while the parts of the rooms near the ceilings become much warmer than they were before the insulation was applied.

The installation in hospitals of a type of heating which permits some central control of the temperature of the heating medium with reference to the varying weather conditions outside results in a saving in fuel.

Thus, if we have the ordinary single-pipe steam heating we get no heat unless we have steam at a pressure high enough to force the air out of the radiators through the air valves. There is with such a heating plant a great tendency to overdo the matter in mild weather, with waste of fuel.

In large hospitals forced circulation hot-water heating is therefore especially desirable, because the temperature of water, which is directly responsible for the amount of fuel burned, can be regulated easily from the boiler room in proportion to the weather.

Vacuum and vapor systems of steam heating are far more amenable to regulation than is single-pipe steam heating, but hot water seems to have the greatest number of advantages.

In general it is best to heat the hot water with steam from a steam-boiler plant, since steam at considerable pressure usually is demanded for sterilizing, cooking, laundry, etc.

If we have an efficient boiler plant with steam at comparatively high pressure, we can very easily and economically furnish hot water at one controlled temperature for heating, at another controlled temperature below scalding point for general bath service, and at another controlled higher temperature for kitchen and laundry service.

The high-temperature steam piping is small in area, can be heavily insulated, and so gives little loss. By having the separate water systems each controlled automatically as to temperature, we save overheating any of them, and make a very substantial saving in fuel over any arrangement which necessitates excess temperatures for any of the services.

There are to be, of course, separate steam-heating arrangements, directly from the boilers, for summer and extra high-temperature heating of such places as operating rooms and sterilizers, thus permitting the general heating system to be shut down in warm weather.

One of the most potent sources of waste fuel in hospitals as in any plant, is through leaks. A very small trickle of hot water wasting from a defective trap or valve can run into a ton of coal in a surprisingly short time, and the waste is expressed not only in the fuel so lost, but in the fact that the leak may be in a return pipe, and that the water so lost has been purified, so that its replacement means the deposition of the scale removed by heat from its successor and deposited on the boiler or heater tubes.

Scale, which is mostly lime, when allowed to accumulate on heat-transmitting surfaces, is responsible for much waste of fuel, and a constant fight must be waged to keep the scale thin and innocuous.

A square foot of uninsulated steam pipe in a temperature of 70 degrees can account for as much as 100 pounds of coal per season.

A hot boiler room, especially up near the ceiling among the pipes, is indicative of a wasteful plant.

Cooling such a boiler room by installing ventilators, fans, etc., creates a further waste. The heat can be made to go where it should go, and can be prevented from going where it should not go. Failure so to control the heat is an indication of inefficiency.

Too often we find the insulation on the pipes badly disintegrated, or missing. Too often we find the breechings, tanks, etc., innocent of insulation. In such plants, we do not find any records for fuel consumption being broken.

One of the troubles about insulation around heating and power plants is that the desirable insulation which prevents waste, constantly deteriorates, since it receives hard knocks, gets wet, then is baked, maybe removed and probably will be replaced by careless hands. The undesirable insulation, on the other hand, such as scale and soot and the like, constantly is being unobtrusively built up and constantly is becoming more infernally effective!

Most boilers are fairly efficient as heat transfer agents if they are well maintained. They will nearly all take out a fair share of the heat from the hot gases which are strained through them.

If boilers are not provided with adequate fireplaces where the combustion of the fuel can be completed at high temperature before the gases touch the comparatively cool boiler, however, there will be distressing smoke out of the chimney top, and a waste of fuel.

A few years ago almost the universal practice was to install a metal grate, on which the fuel was burned by natural draft, and to place this grate close to the water-cooled heating surfaces of the boiler. An over all efficiency of from 50 to 60 per cent was obtainable, along with much smoke.

ENTRANCE TO NURSES' HOME
Crow, Lewis, & Wick, Architects, New York City.

Now we have learned to build a fireplace far enough away from the water-cooled surfaces that the combustion can be completed and a clear very hot gas attained before the cooling process commences.

The allowable temperature in this fireplace is limited at present only by the melting point of the fire-clay lining, as efficiency increases within our limits, with the reduction in excess air and corresponding increase in temperature. A modern boiler, therefore, in many cases, looks like an apple sitting on top of a pumpkin, the pumpkin being the firebox.

With use of oil and gas and pulverized coal, grates have disappeared, and combustion is entirely smokeless.

Efficiencies above 80 per cent are not at all uncommon with these three fuels and can be maintained indefinitely, without any ash or clinker to speak of, and with very little labor.

There is an old hand-fired plant in a hospital, which burns 3,000 tons of 12,000 BTU washed nut coal per year, at 50 per cent efficiency. They pay $5 per ton for this coal and obtain 36,000,000,000 heat units for the $15,000 annual fuel appropriation or 2,400,000 BTU for $1.

If this same yearly demand of 36 billion heat units is supplied by a boiler plant which develops 80 per cent efficiency and which uses a 10,000-BTU coal consisting mostly of slack and which costs $2.50 per ton (a reasonable surmise in Illinois), they will need but 2,250 tons at an annual fuel appropriation of $5,625, and will get 6,400,000 BTU for $1.

This simple calculation, covering conditions actually in effect in many hospitals, shows that there is still some romance in the utilization of fuel.

In this case the annual fuel saving alone, not including an actual labor saving of one man throughout the year, amounts to $9,375, or 15 per cent interest and depreciation on $62,500. In many cases the more efficient boilers, furnaces, and combustion arrangements can be installed for half of such a sum.

V. Special Requirements

Interior Architecture as a Basic Aid to Beauty in the Hospital

Stanley Matthews, Architect, Cincinnati, Ohio

IN A PREVIOUS article I made a plea for architectural beauty in our hospital buildings as a matter of necessity rather than merely one of chance or choice. That is to say, that in such a building, where beauty is fundamentally lacking, something has been left undone for the benefit of the patients which is at least comparable to the omission of a valuable piece of modern scientific equipment without which the purpose for which the building was erected is, at least to that extent, defeated.

I have now been offered the more difficult task of stating the underlying principles involved in the pursuit of beauty and their application to hospital buildings, and to discuss them from the architect's point of view. Assuredly, this is the only point of view from which I could be considered, in any way, qualified to speak, and yet I have some misgiving as to whether this can be done in a way entirely acceptable to a reader of this magazine, whom one would naturally expect to find more medically than architecturally minded. Hence it is unavoidable that the approach be of a somewhat general nature.

The Demand for Beauty

In discussing this subject, since it must have a definite hypothesis as a point of departure, let us assume that the necessity for beauty is actually a proved fact. The truth of this need not depend upon the force of any arguments, but is much more conclusively substantiated by two phenomena rather recent in this country, which are apparent to anyone, whether within or without the architectural profession, who is sufficiently interested in the subject to observe them: First, the almost instant appreciation, even by the untrained mind, of true beauty where it already exists; and second, the determined, if often misguided, efforts to achieve it, on the part of even the humblest of our modern builders, as seen in the many real-estate subdivisions dotting our suburban landscape. Even where, through gross ignorance, these efforts result in almost total failure, they are nevertheless an encouraging sign of the times, in that they demonstrate how widespread this craving has become within a comparatively few years. And as we travel upward through the larger and more important buildings of all types with which the more intelligent and better educated classes of the public are involved, we find more and more cause for optimism, until we finally are faced with the gratifying realization that American architecture at its best has, during the past quarter century, not only overtaken but surpassed its European contemporaries.

Almost the best-known law of life is that when a demand exists, a corresponding supply is inevitably and quickly created; that the demand for beauty exists there can be no doubt, and yet, the supply is still woefully inadequate. With all the notable achievements of recent years, of which we can be justly proud, not all or even most of our architecture today has risen above the level of mediocrity, the more successful examples being too often isolated and conspicuous chiefly by contrast with the failures surrounding them.

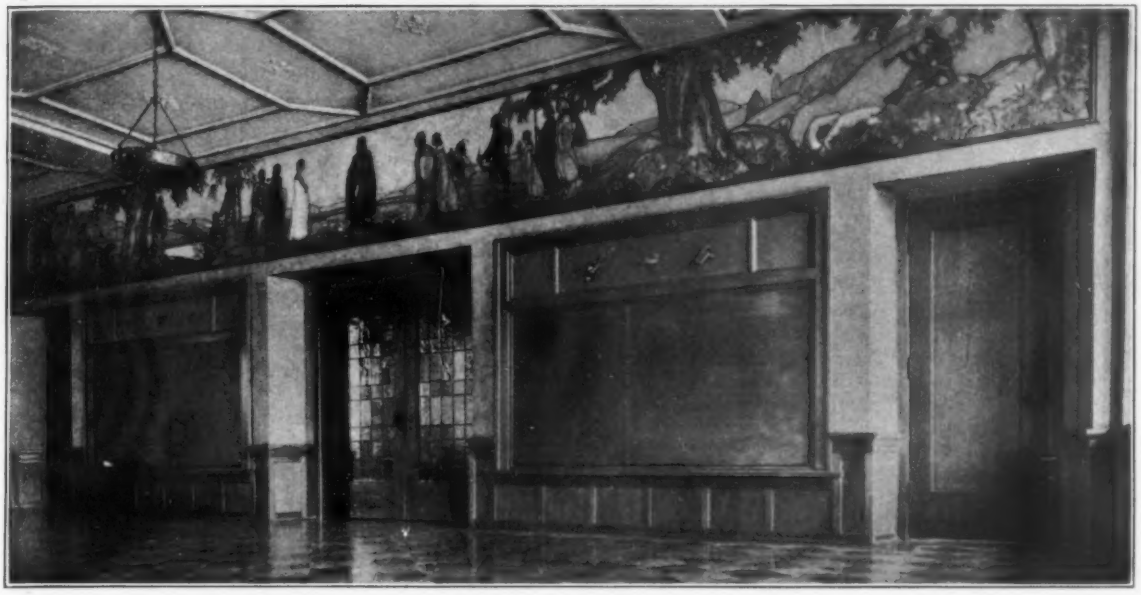
What Is Beauty

Why is this? The answer can best be found in the asking of another question: *What Is Beauty?* Here is the real difficulty, which serious though it is today, will disappear as soon as the true answer to that question has come within the comprehension of a sufficiently large group of the building public. When this occurs the architectural atrocity will no longer be tolerated. It is the lack of agreement on the part of the public, in answering the above question, which makes such things possible, and this lack of agreement is due to a widespread misunderstanding as to the nature of beauty's ingredients, or in many cases, to a total lack of knowledge on the subject. Take, for example, the still popular illusion that beauty is a mere by-product of design largely governed by contemporary taste or fashion, and therefore something which can at will be added to or omitted from an otherwise complete building, without affecting, to any important degree, its primary and practical uses, a belief which has two far-reaching effects for ill upon many otherwise excellent buildings. In the first place, the conception of beauty as a matter chiefly of surface decoration prevents due thought being given it until after serious errors in plan and structure have been committed which are often impossible to correct even if later discovered, and which forever impair the practical uses of the building; and in the second place, it automatically places beauty in the class of luxuries and immediately forces us to pay the premium usually exacted for anything classified as such.

Truth Is Eternal

There was a time not so long ago when, in the absence of scientific information on the subject in the public mind, ordinary daylight was considered a luxury, and a direct tax on windows was accordingly levied against itself by that very public. While such a thing seems hardly credible in view of our present knowledge, and would be hardly more tolerated today than a tax on bread, it did actually require a certain definite length of time for knowledge as to the true nature of light and the fact that it is a necessity to life and health, to become public property, and as soon as it had become sufficiently so, the tax was not only abolished, but in due time an adequate supply of this newly discovered necessity was guaranteed even to the poorest of us by law. The light itself, its properties, and the laws by which it acts, have all remained the same since it was first created. The only change is in humanity's conception of them, as it laboriously travels from ignorance to at least a partial knowledge of the truth.

Now it is my contention that there has been a growing mass of evidence accumulating since the earliest records of man to the effect that Beauty is an already existing thing, exactly comparable to light or any other natural phenomenon, and in like manner governed by unchanging laws which are just as real, though not quite as readily demonstrable as those of physics. That is to say, beauty cannot be created because it already exists; it can only be discovered, and in our search for and application of it, the chances of success are almost hopelessly against us unless we either know consciously or feel subconsciously the true laws and principles which govern it and which being God-given and not man-made cannot be altered by any human being. They can of course be disobeyed, either knowingly or ignorantly, and in either case, as every scientist knows, the infraction of a natural law brings with it, soon or later, an absolutely sure penalty, which, in this case, is ugliness—incidentally, something which is not merely an



RECREATION ROOM, SHOWING MURAL DECORATIONS, CHILDREN'S HOSPITAL, CINCINNATI, OHIO
Stanley Matthews and Elzner and Anderson, Architects, Cincinnati, Ohio.

offense to the eye, but which will always be found to be accompanied by other faults in the realm of utility or convenience. It is a significant fact that most of the "ugly old buildings" which are now coming down about us in ever-increasing numbers are doing so primarily because they have proved to be failures economically rather than aesthetically, and the present necessity of replacing them at a tremendously increased cost is indeed an unwelcome heritage bequeathed to us by a less enlightened generation.

The above theory being true, just think what far-reaching consequences a general acceptance of it can be expected to have upon our commonest physical surroundings, at least insofar as they are affected by the works of man. On the one hand, those architects and other designers now engaged in the hopeless struggle to invent laws of their own will abandon their efforts and apply themselves to the study of those which already exist, while on the other hand, those who are already successfully making use of these principles will have at last from the man in the street a sufficient measure of cooperation to enable them together to remove architectural design once and for all from the realm of fashion to a more dignified and permanent footing. Surely any doctor will agree that nowhere has ignorance, misinformation, and superstition played a larger part in the past than in matters of health, and yet by concerted efforts on the part of the medical profession over a comparatively short period of time, the great mass of the public has become familiar with at least the fundamental principles of sanitation and hygiene to a point where our normal span of life is already materially increased and our death rate is steadily decreasing. Once an equal amount of information as to the principles on which true beauty is founded has been as widely disseminated, we would have a right to expect quite as noteworthy a change for the better throughout all branches of design. Detailed and comprehensive knowledge on the subject on the part of everyone is of course neither possible nor necessary, any more than it is necessary to have a medical degree in order to observe the basic laws of health, but a general comprehension of the first principles and a sympathetic attitude toward them is as desirable in one case as the other.

Beauty Not in Formulas

It is probably fortunate that no one has so far succeeded in reducing the laws of beauty to a written code or to a set of formulas. It seems to have been left to each of us who wills, to seek out and discover for himself what he can of these eternal laws which have stood through the centuries and have again and again been discovered, used, lost, and rediscovered, giving to a fortunate few in each succeeding generation, the thrill of a worker in a research laboratory who, through many trials and failures, finally arrives at a conclusion which he first suspects and then knows to be a small section of universal Truth. A slow and tedious process, some may think, but still the best, since all knowledge so acquired becomes so peculiarly his own that it not only can never be forgotten, but eventually ceases to be a matter of conscious thought and becomes instinctive.

But how, it may well be asked, is one to proceed who feels a need for beauty in his surroundings and a desire for a true comprehension of it, but still has neither the time nor the inclination for any such laborious research? For him I believe the only thing needed is a good working definition of beauty which he can test for himself at every opportunity and once satisfied as to its truth, he can, with a little practice, use it as a sort of yardstick in judging for himself as to what is beautiful and what is not. Once he can do this, he need do no more, for he will thereafter, of his own accord, demand the beautiful in preference to the ugly and will, on account of his better understanding of what the professional designer is striving for, be more willing to trust the latter, to whose specialized knowledge he can leave the task of obtaining it.

Tests for Beauty

For such a definition I am indebted to Richard Franz Bach, formerly of the faculty of the Columbia School of Architecture and now curator of industrial arts at the Metropolitan Museum. Architectural beauty, he has said, is a combination of *fitness* and *repose*, and I do not believe that a more useful or comprehensive definition has ever been found than is expressed by those two simple words. A building simply cannot be beautiful, in the completest sense, if it is not primarily fitted to the use for which it is intended, and this is a question of *plan*. Repose is a question of *elevation* and is a little more difficult to describe, but is that quality in a building which allows the eye to rest quietly upon it as a whole without being distracted hither and yon by disturbing minor elements of the design which, no matter how interesting in themselves, tend to

produce what is known colloquially among architects as a "jumpy" elevation. Perhaps the simplest and most perfect example of repose is found in a Greek temple, although this quality is not confined to any one type of building, but is common to all good architecture of whatever style or period.

It should be noted first that both of these attributes are fundamental in nature and must therefore be incorporated into the building from the very start, and second, that they are entirely independent of ornament or any other applied decoration. Severity in other words, does not deny beauty provided both fitness and repose are present, while no amount of ornament can redeem a building in which either or both these qualities are absent. The Temple of Concord in Sicily, being among the best preserved examples of Greek architecture, is about the most perfect illustration of this definition I know, although its original coating of stucco and brilliant color, with which the Greeks invariably covered even the marble of their buildings, has been destroyed for centuries. Exactly the same test can and does apply to even the smallest cottage, although our speculative builders have unfortunately not yet discovered the fact.

All the foregoing remarks apply equally well though in varying degree, to all buildings of whatever size or type, provided they are accepted as applying to any. Now let us attempt to test them out on a hospital building. If we restrict ourselves to the interior treatment alone, since the interior arrangement of a hospital is more or less prescribed and admits of little variation, we will probably find the question of fitness predominating, bearing in mind that this quality applies not only to the actual plan, but to the materials used as well. Also, where repose enters in at all, it is well to remember that in a hospital particularly, where the patient is in an abnormal condition, if he is to receive any benefit from a quiet and reposeful atmosphere, this should be obtained for him not through the eye alone, but the other senses as well. With no pretense of making it complete, I have listed several items below as a partial illustration of the use of the definition. Some of my observations in connection therewith were made during a recent experience as an actual patient in a modern hospital, which while generally entirely satisfactory, I found most interesting and enlightening as to some details.

Floor Coverings

Granting that terrazzo is the most satisfactory flooring from the point of view of upkeep, and is entirely appropriate where this is of paramount importance, it is, from the point of view of the definition, unfit for use where the sound of traffic over it can reach the patient as in the corridors, which in most hospitals I am afraid are still too noisy. In a different way, it is unfit for a private bedroom, where, although the patient may actually never set his foot to it, it presents a cold and repellant surface to the eye, and the atmosphere of the room loses in consequence.

Wall Surfaces

Smooth wall surfaces and absence of moldings are now taken for granted in the working parts of our hospitals; but the entrance lobbies are becoming more and more patterned after those of small hotels or apartment houses, which is well enough, up to a certain point. But there can be one distinction made: Cleanliness being the watchword in any modern hospital, it is well to maintain the impression of it throughout the building even in those portions where it is not a vital necessity. Many beautiful effects are obtained nowadays with plaster relief and textured wall surfaces and where these are used they will look more fitting if the relief in both cases is kept low. Regardless of their actual condition, surfaces which are obviously easily cleaned will give a more appropriate impression of cleanliness than over-roughened walls and heavily decorated cornices.

Coloring

The above paragraph applies here too, particularly as to the finish of stained woodwork. Old-English oak effects can be very beautiful in many places, but it is not fitting in a hospital to imitate what is known to be the result of the dust and grime of ages. Paint on wall surfaces, at least those which the patient sees, should not advertise that its primary purpose is not to show finger marks. He is much more interested in something which will remind him of sunlight.

Ceiling Heights

Many hospital ceiling heights are higher than necessary and hence violate the rule of fitness (not to say economy) as does every other unnecessary thing about a building. The majority of the rooms in a hospital are small and in these a height out of proportion to the area can become a truly painful sight to the eye. This is still more true of the necessarily long and monotonous corridors, but if these are designed with the proper height for their width they can be actually made to add to, rather than detract from the beauty of the building.

Vistas

A corridor is a thoroughfare which always implies an objective at the end of it. A solarium or any other well-lighted and fairly open space clearly visible at the end of a corridor furnishes the most fitting objective and reduces the apparent length of the journey considerably. The same effect is seen in the vistas produced where two wings connect with a main corridor to form a Y which has proved a most practical plan in several instances.

Furred Beams

The part of his room of which the patient is most conscious is the ceiling and there is one feature of our modern fireproof buildings which in the interests of beauty I hope some day to see eliminated, though at present I know of no economical remedy. The combination of heavy structural members and thin partitions plus the usual assortment of plumbing and heating pipes have brought into being an arrangement of furred plaster beams and columns for their concealment, connecting with one another more or less at random to a degree where in a small room nearly every intersection of wall and ceiling is broken by one or the other. The average patient is accustomed to unbroken wall and ceiling surfaces and his eye naturally travels to and along these unfamiliar features over and over again until they become almost annoyingly obtrusive, and I hopefully await the day when engineering ingenuity may succeed in eliminating them.

Lighting

I hope the day will also come when, as a matter of course, the ceiling will be kept free from lighting fixtures. Even those fixtures which are so designed as to reduce to a minimum the glare in the patient's eyes are certainly not things of beauty, and when it is made a focal point in his main line of vision he is forced day after day to take in every detail of its defects in this regard. After one such experience, I have become more enthusiastic than ever over one type of wall fixture which conceals the source of light while diffusing it and, at the same time, conceals itself as far as possible by assuming the same coloring as the wall. Lighting fixtures in general are usually a sore subject with anyone who has ever had to select them, and the most fitting way to treat a hospital patient is probably to allow him to forget them altogether.

If it is objected that some of the above considerations are more psychological than practical, it must be remembered that beauty and its effects upon human beings is largely a matter of psychology anyway. At most, the above list is intended only to be suggestive and if the reader is interested in the subject he can increase it almost indefinitely simply by looking about him in any building in which he happens to find himself.

Tendencies in Construction of Schools for Nurses

J. C. Murphy, of D. X. Murphy & Bro., Architects, Louisville, Ky.

THE school for nurses is another phase of the development of the modern hospital. The hospital, in its origin a home for the care of sick, expanded into the complex institution that not only nurses the sick, but is an overgrowing link in safeguarding the health of the community. The hospital, as it grew, found that it must supply trained personnel to meet its needs in the care of its own sick. At the same time, it must meet a public need by training women particularly, and to a limited extent, men too, to supply an evergrowing public demand for individual service in the home.

While the training of nurses is an educational function and may, to a large extent, be taught by theory, there is so much of it that is intensely practical that proper training can be secured only in connection with a modern hospital; for there only can the practical part of the training be given. In the planning of a hospital it therefore behooves its executive and the architect to see that provision is made for this most necessary function.

In Hospital or Nurses' Home?

The proper location of the school is a subject that has caused much discussion. The hospital in the early stages of the nursing school, with a course of instruction that was simple and equipment for teaching that was meager even in the best, made no adequate provision for a school. The place devoted to teaching the nurses was relegated to the most available place, sometimes to a place not suitable for any other use. This might have been in the hospital, or in the nurses' home, if the hospital could boast of a separate home. As the hospital progressed and the nurses' school grew in importance, the school seemed to be considered a part of the nurses' home; and so during this period the school was generally placed in the nurses' home. A reaction seems to have set in of later years. The teaching is recognized to be a part of the work of the hospital, which in itself is a laboratory on a large scale. In this laboratory everything that a nurse is required to do in the daily practice of her profession must fall to her lot at some time during her school life.

A consideration that is worthy of thought is the desirability of separating the work of the student from her home life. As all students live in the confines of the hospital during their period of training and are, therefore, separated almost entirely from home influences for a period of three years, the nurses' home should approach to a real home as nearly as is possible in the living quarters of a large group of students of every taste and disposition. The theory is that, while in her quarters, the student should be free to relax, free from contact with the routine work of the hospital and its patients, an atmosphere suggesting home prevailing at all times, her only task consisting of the time for individual study which she would have to give were she in her own home.

A minimum of accommodation for a nurses' school consists of a classroom and a demonstration room, no provision being made for chemical or physical laboratory. The hospital diet kitchen would be used for teaching dietetics, the hospital laboratory for laboratory work; the pupils taking turns in the diet kitchen and laboratory. Chemistry would be taught by lecture and textbook. This with an office for the teacher, necessary toilet, and supply closets for the materials used in demonstration, would complete the plan of a nurses' school in the smaller hospital. See Figure 1.

There are several steps between the nurses' school in the small and that in the large hospital. As the hospital increases in size, the school is expanded to conform to it. The large hospital often has a large school with a complete nursing faculty. This normally consists of a number of classrooms, demonstration room with a sufficient number of beds, science laboratory, dietetics laboratory, offices for the instructors, reference library, adequate toilet rooms, a cloakroom if the nurses' home is in a separate building, sterilizing room, and a maid's closet with hopper. See Figure 2.

In planning the largest hospitals full provision is generally made for the space and equipment required by the school so that a complete course may be given by the hospital. Sometimes the school is in the nurses home, sometimes it is in the hospital, sometimes a portion of the teaching is given in the home and a portion in the hospital.

In the large cities where there are schools of the college or university grade, much of the theory and laboratory work in chemistry and physics is sometimes given not at the hospital, but at the local university. Where this is done, it relieves the hospital of part of the labor of teaching as well as the expense in building and equipment necessary to provide for such studies. This advantage may be overbalanced by the inconvenience, the cost, and the loss of time in sending the students some distance for these class periods, aside from the fact that the students are temporarily out of the control and supervision of the hospital. Then too, the hospital, if of a high standard and a stickler for the quality of its graduates, may not feel that it is willing to surrender its students, even temporarily, to another institution and accept a quality of teaching over which it has no control and that may not be up to its standard.

In smaller cities where university work cannot be had, it becomes necessary to give complete training in the hospital or supplement the course by affiliation with other hospitals in special cases as pediatrics, communicable diseases, tuberculosis, and psychiatry.

Essentials for Nursing School

In the nurses' school, there should be ample accommodation for every real need. However, there is danger of overdoing it, especially where the funds are reasonably ample,

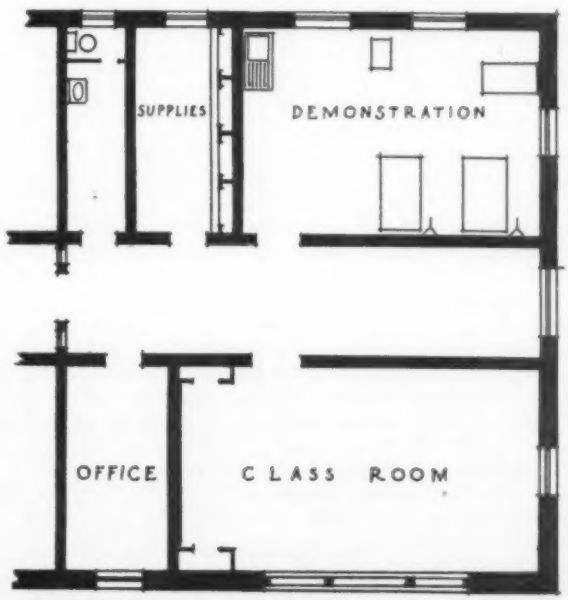


FIG. 1. NURSES' SCHOOL IN SMALL HOSPITAL DESIGNED AS WING OF HOSPITAL OR NURSES' HOME
D. X. Murphy & Bro., Architects

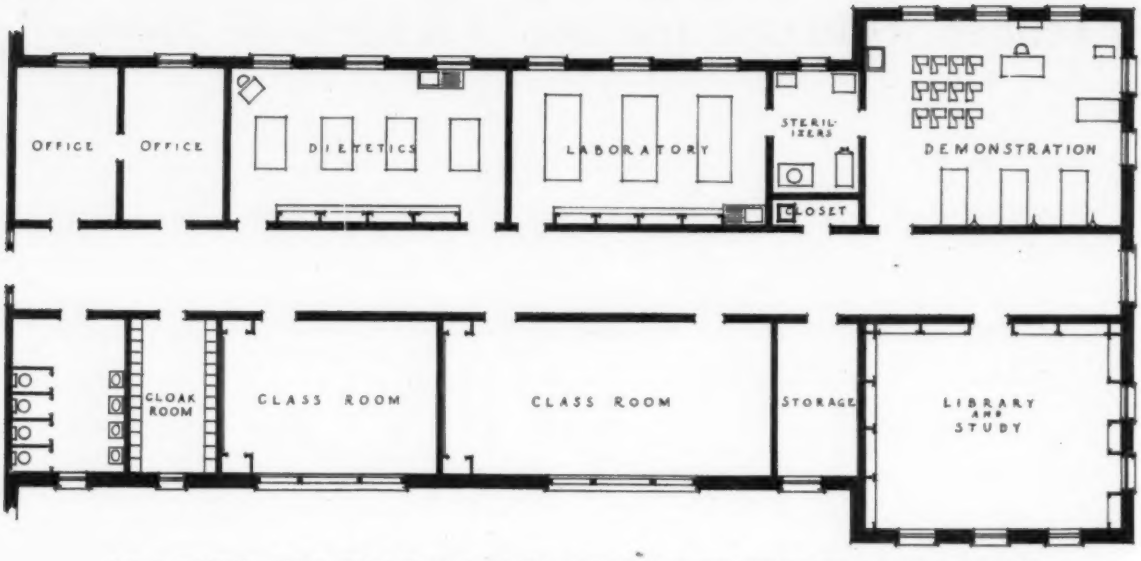


FIG. 2. NURSES' SCHOOL FOR LARGER HOSPITAL, DESIGNED AS WING OF HOSPITAL OR NURSES' HOME.
D. X. Murphy & Bro., Architects, Louisville, Ky.

although the general experience is that funds are far from ample. Even though the funds be limited, a spirit of rivalry might prompt the hospital executives to overdo. Before this is done, the matter should be weighed thoroughly. In planning a hospital, particularly in the moderate-size hospital, analysis should be made of the use to which each room is to be put, whether by careful study there might not be concentration without loss of efficiency. Might not the school be reduced to the minimum of a general class and lecture room and a demonstration room? While a diet kitchen equipped for teaching dietetics is desirable, in many cases it might be dispensed with and the schedule so arranged that the practical teaching of dietetics would be done in the regular hospital diet kitchen. Some modification would probably be necessary to meet this dual use. Then there is the necessity of providing for a science laboratory for teaching chemistry, bacteriology, anatomy, and physiology, and the preparation of solutions. Here, too, necessity for economy, when the classes are not too large, may compel the hospital to make use of the hospital laboratory, augmented somewhat, if possible, so that students may receive their instruction here without interfering with the regular and necessary operation of the laboratory for general hospital use.

The suggestion of economy is based on the fact that necessarily there is additional cost of building by reason of added cubage, or if the building is not actually increased in size, the space that is unnecessarily occupied by the school, might, to the very great advantage of the hospital, be used for some other more necessary purpose.

The equipment of separate rooms is also an expense. It is all very well to have separate rooms with the latest equipment for each phase of the work, but where these rooms are used for possibly a few hours only each week it would be better to make a judicious combination so that there might be a more intense use of the space, the equipment selected to serve more than one purpose. It is generally conceded that there is more work accomplished in any organization when the space is fully occupied and workmen are always busy.

Plan and Equipment

It would seem superfluous to say that the classrooms should be planned so that they will receive ample light and ventilation. A rectangular room is preferable with windows on the long side, ample blackboards, charts that may be rolled up, and cupboard at the teacher's end of the room. The floor is a debatable question. A terrazzo floor makes for cleanliness, economy in first cost, and low upkeep, but many object to its hardness and consider it cold and depressing. Acoustically it is poor. A more resilient and quiet floor—wood, rubber, linoleum—is preferred as being more comfortable and better acoustically. Windows should have shades that cut off the direct sun's rays but admit the light. The color scheme should be in neutral tones that are comfortable to the eye and do not absorb too much light. The artificial illumination should be of the type that hangs close to the ceiling, so distributed as to give six to eight foot-candles throughout the room at the level of the writing table. Provision should be made for outlets for shadow box, for lantern slide, and for screen.

The demonstration room should be finished as other classrooms, with its particular equipment of beds for adults, children, and crib for infants. It would be desirable to have arm chairs for students to facilitate taking notes. In the room itself, or preferably adjacent to it, should be water and instrument sterilizer and autoclave all connected with steam and in operating condition. As these are the instruments the nurse will have to use in her work, it is necessary that she should be taught their proper use in the classroom where they can be analyzed and gone into in detail rather than depend on hurried and intermittent instruction in actual practice in the operating room when only a sketchy and often wholly incorrect impression will be given. There should be signal system at bedside, cabinets for linens and supplies, medicine cabinet and charts, scrub-up sink where student may learn surgical scrubbing up, outlets at bedside for electrical treatment and demonstration, bedside tables and meal trays. In fact, it would seem that the demonstration room should be equipped as a working ward so that every detail of ward service could be taught with deliberation. There should be a stretcher and wheel chair so that the student may learn their use for transferring of patient from chair or stretcher to bed, or from bed to chair or stretcher. The doors should be of regular hospital width in order that students may be taught how to handle beds and wheel chairs through them. These are details that might seem inconsequential to the unthinking, but which make for thoroughness.

The laboratory is generally equipped with the type of tables built for student use, whether chemistry, physics,

or dietetics, all set up, connected and supplied with water, gas, and electric current ready for actual use.

There should be a private office for each teacher, not necessarily large, but well lighted and ventilated, where the teacher may undisturbed prepare for her work and keep her records, a supply room for the storage and care of the movable parts of the equipment, bedding, and other supplies. These rooms too, should be so planned that the nurse in using them would go through the same routine that she will find in the hospital. These are details that make for the well-rounded and thorough nurse who gives prestige to the hospital.

The University School

A tendency as yet in the offing, though a radical one, is worthy of the fullest consideration. It has been proposed that the education of a nurse should be considered in the same light as the education of a young woman for any other profession. Would it not be better to separate the nurses' school from both nurses' home and hospital so far as its theoretical training at least is concerned? In large cities the school for nurses might be a department or school of a local university where all students in the city would matriculate, where all theory would be taught. The student, responsible to the university, would go out for different periods of affiliation with the local hospitals, being a resident of the hospital only during that particular period. On the university would be imposed the whole responsibility for the character and completeness of the nurse's education. It would see that during the course of study each student, through these affiliations, would have practical work in every ordinary duty a nurse might be called upon to render whether in hospital work or on private duty. Only students with proper qualifications for admittance would be received and college credits would be given for all work done in the school. All students who completed the regular course and met the conditions of the school for graduation as well as the conditions of the state board, would be given a degree.

If such a system were adopted, the school should not be content with undergraduate work. It should have the necessary faculty and equipment and resources to give postgraduate work to all students who might desire to work for a higher degree. Here would be trained hospital and other technicians and specialists, as well as those who wish to be teachers and hospital executives.

Although a graduate of this school would have received a more thorough education than would be possible in any but the largest hospitals, the student would lose something she now has, that intimate connection with a certain hospital, her alma mater, for which the normal student has a most intense loyalty.

The Financial Consideration of an Expansion Program

M. R. Kneifl, Assistant Secretary-Treasurer Catholic Hospital Association

THE expansion program of a new hospital, or an addition to an existing plant, brings up for much thought the question of finance. This question of finance is beset with as much technical background and procedure as the layout and construction of the hospital. Therefore, as an aid to the understanding of our problem, a chart has been provided in which is included three exhibits. "A" Expansion Program, "B" Provision of Funds, and "C" Disposition of Funds.

This plan of showing these facts is probably the best one. It reflects the relationship, if there be any, and the sequences—which in this subject are very vital. The author's purpose, by means of this chart, is to show the fundamentals of the subject of financing the new hospital. Separate articles by others will develop the individual and particular methods of financing. It therefore includes very nearly every possibility.

The analysis of "A," the Expansion Program, shows four schedules: Existing Encumbrances, Fixed Investment, Working Capital for the period following construction and an Endowment Fund. This, of course, represents the maximum any program would call for, and as such ideally suits our purposes. Another expansion program may be smaller, may call for only one of the four possible schedules—usually in such cases, the building—but in principle the problem remains the same.

Under existing encumbrances, will be found only major considerations. In this connection nothing is assumed: the hospital may or may not own the land; and likewise, on the land there may or may not be buildings. In any event, the hospital executive is interested in the status of the property. There are, therefore, enumerated such major points as must be known before the further consideration of building construction can be taken up.

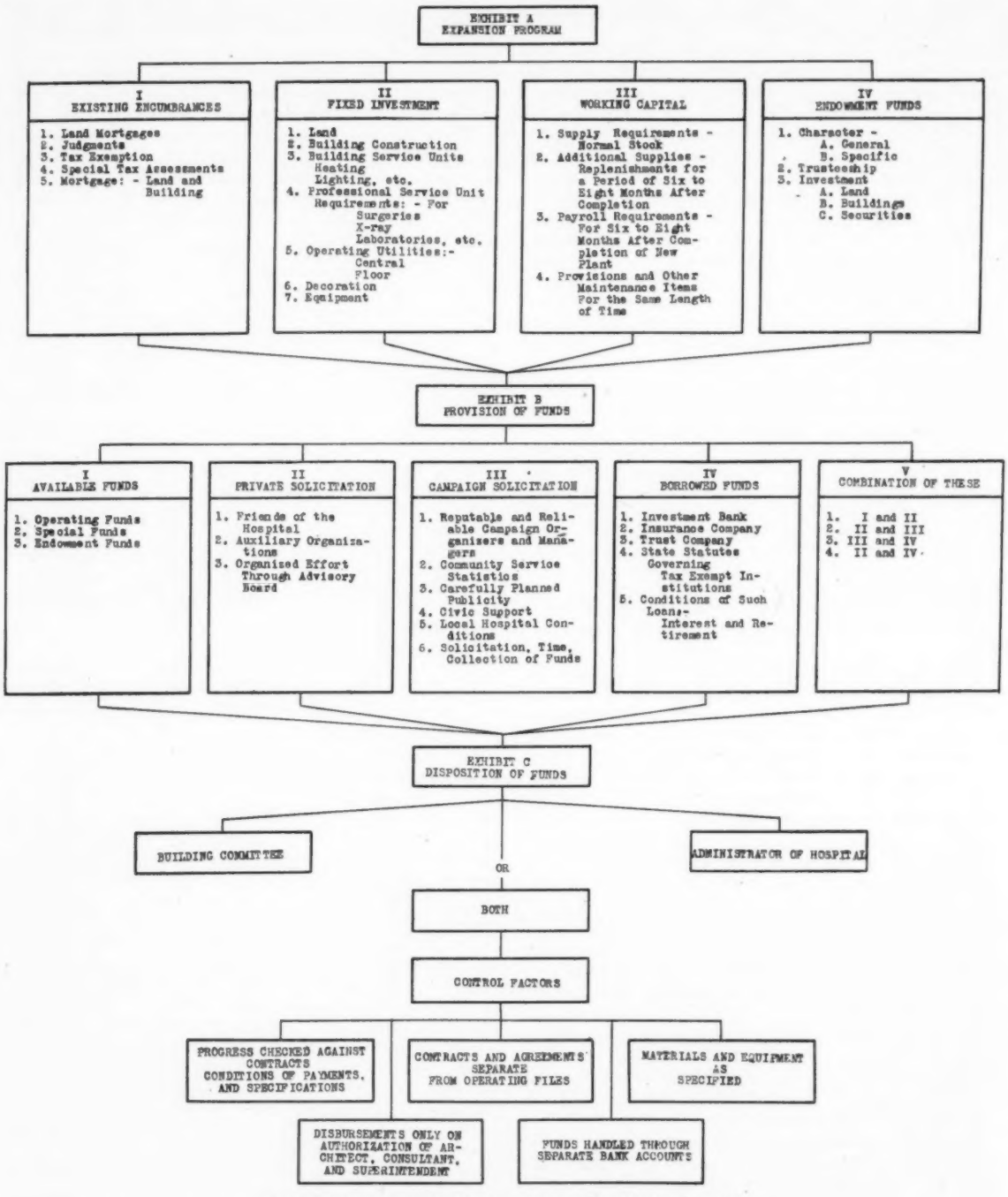
The plant completed ready for operation involves many steps. The titles to the various parcels of land used must be clear; in Schedule I, may be found the usual considerations in clearing a title; in Schedule II, you will find detailed the division of a plant, through the various processes to completion and operation. Note these because they represent a logical development of a construction procedure.

In Schedule III, will be found the very important factor of Working Capital to be available after the plant is completed and ready for operation. Working capital, in the strict sense of the word, is that capital used for the conduct of the business. This does not mean capital investment in land, buildings, or equipment, but rather capital used for the purpose of supplies, provisions, maintenance items, and meeting payroll requirements. You will note that the period of time provided for is six to eight months. The new institution is thus afforded adequate funds during the early months of its operation—a period of time in length, conservative and sufficient to establish the hospital on a normal occupancy basis. It is assumed that on such a basis, it can carry its own maintenance requirements.

The Endowment Fund is also included. It has a definite place in the financial structure of a hospital. An endowment may be for a number of purposes: It may be for additional lands or buildings; the income derived from it may be used for the care of free patients, for the maintenance of a special department, for the nursing school, or for any and all purposes. Sound administration of hospital business dictates the advisability of this form of finance.

The trustees of an endowment fund are responsible for the fund and the disposition of the income derived from it. Many times there are conditions and limitations attached to its administration. These conditions must be complied with before a board of trustees can be said to have discharged their full duty in this regard.

In Part "B" is the provision of funds for carrying out the program. Four methods of securing funds are indicated. Each is analyzed. A fifth is set up to show that financing is possible by a combination of some of these methods or of all of them. In many instances, this is no doubt the case. The conditions of the individual case usually indicate the method or methods to be used. Study the points supplied in the analysis of this exhibit; they indicate the points which those contemplating building must at some time carefully consider.



A GRAPHIC PRESENTATION OF HOSPITAL FINANCIAL PLANS

The disposition of the funds is shown in Exhibit "C." This may take place through the finance division of a building committee, or through the administrator of the hospital. The disposition of funds may be, and often is, left to both. However that function may be handled, the control factors which are always present, for safeguarding the responsibility of the board of trustees of the hospital, are also indicated. A better understanding on the part of boards of trustees and superintendents of hospitals of this business procedure would save much trouble and difficulty afterwards. It would afford, too, a definite knowledge of what went into the hospital, in construction materials as well as equipment, which for the future would be very valuable. A study of the equipment specifications on an inspection tour would be of great assistance to the superintendent; it would probably reveal some facts heretofore not fully understood or appreciated.

In conclusion, when preparing the finance schedules of a new hospital, some of the points indicated in this chart will be brought before you for concrete application. In applying them, do not place emphasis alone on the building requirement. After the building has been completed, it must be operated—and that implies additional funds. In some instances, is this neglected—and the administrators shortly after are forced to resort to some other provision of funds. This usually is a short-term note arrangement, and reacts rather painfully on the hospital at a time when it can ill afford it.

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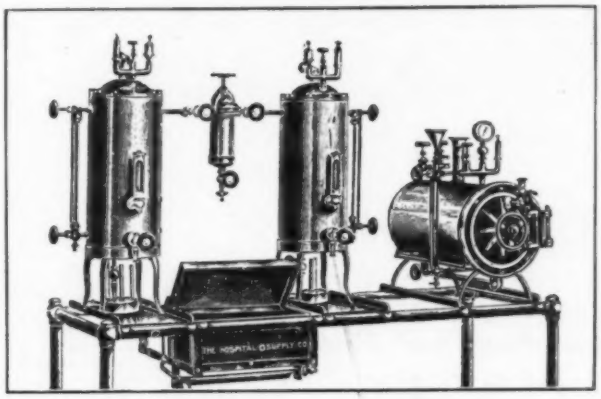

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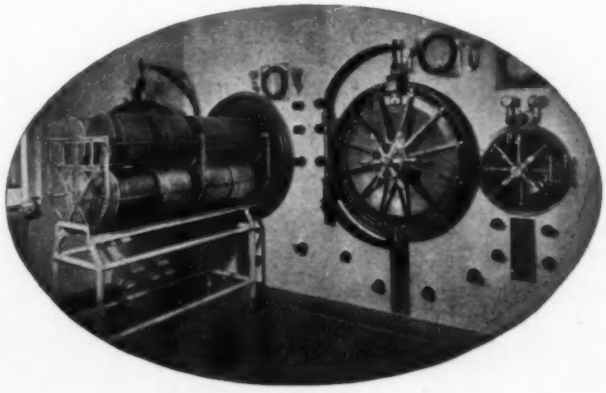

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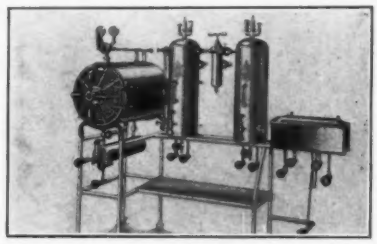

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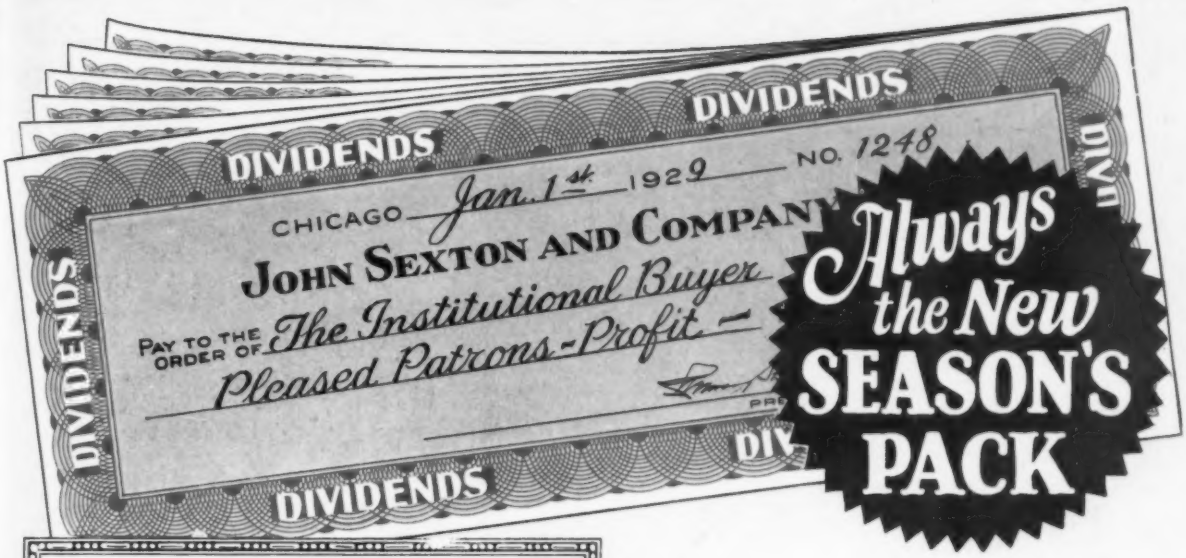

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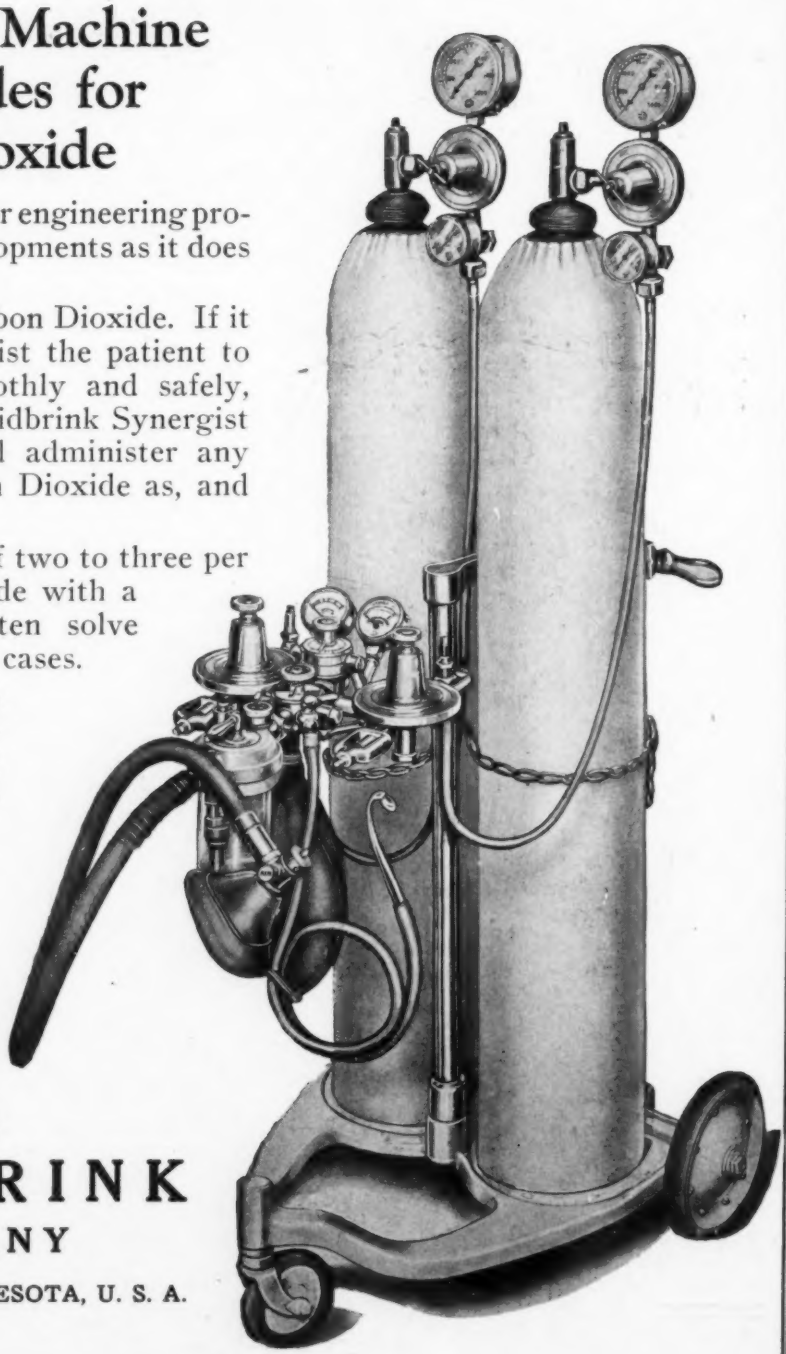


Our Catalog will Give You Helpful Information. Sent Promptly On Request.

THE
HEIDBRINK
COMPANY

MINNEAPOLIS, MINNESOTA, U. S. A.

What Price Gas Anesthesia?

This advertisement is directed to the attention of those who believe that gas anesthesia is "too expensive" for their particular hospital. The following is a consensus of opinions advanced by authorities:

"Hospital records tend to show that the employment of anesthetic gases effects a real economy. Reports from many hospitals indicate that the hospitalization of the patient is shortened two to five days when gas is used as the anesthetic agent. This advantage, together with the less frequent need of nurse care following gas administration, results in a considerable saving in cost per patient."

Consider, too, the increased comfort and safety to the patient. The question nowadays is not: "Can we afford to use gas?", but—"Can we afford to get along *without* gas?"

We'd like to have *your* opinion on this question.

ETHYLENE — NITROUS OXID — OXYGEN
ETHYL CHLORIDE — CO_2-OXYGEN MIXTURES — CO_2-ETHER
CRESOL DISINFECTANTS — GREEN SOAP, U.S.P.

The Ohio Chemical and Manufacturing Co.

"Pioneers and Specialists in Anesthetics"

Cleveland

New York, Chicago, Boston, Detroit, St. Louis, Kansas City, Hoboken, Cincinnati, Washington, Dallas, Minneapolis, Birmingham

N. B. To Those Who Wish to Specialize in Anesthetics.

Upon request we will send to you, without charge or obligation, reprints of authoritative articles dealing with the fundamental principles of gas anesthesia.

Simply fill out this coupon.

THE OHIO CHEMICAL & MFG. CO.
1177 Marquette St., Cleveland, Ohio

Name_____

Address_____

☐ I am considering specializing in Gas Anesthesia. ☐ I have been administering gas but want more information.

H.P-039

OHIO

Three Operations in 10 Seconds!

A clutch disconnects the motor from the knife shaft.

Bowl can be started or stopped while motor is running.

Knives can be stopped while bowl is running, giving perfect control over food being chopped.

Knives are never exposed! Bowl cannot be raised until knives stop revolving.

The bowl is removable — safe and easy to clean.

Safest Chopper on the market!

YOU get more speed, greater efficiency and absolute safety with this improved "BUFFALO" Chopper.

One man and a "BUFFALO" can do the work of three men in the kitchen. For chopping all kinds of meats, fruits, vegetables and nuts; for making dozens of delicious dishes profitably—without waste, no machine can equal the "BUFFALO" Chopper. Over 4000 in daily use!

Write today for information and prices

John E. Smith's Sons Co.

BUFFALO, N. Y.

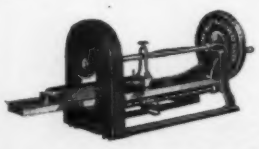
"BUFFALO" Choppers are made in a complete range of sizes for either large or small kitchens.

Model 111A (illustrated above) has ¾ H. P. motor, operated from light socket. Bench or pedestal type.

"BUFFALO"

MEAT, FOOD AND VEGETABLE

Chopper



"BUFFALO" BREAD SLICER

MADE IN 2 SIZES

Saves 5 to 6 Slices on every loaf you cut, over hand slicing.

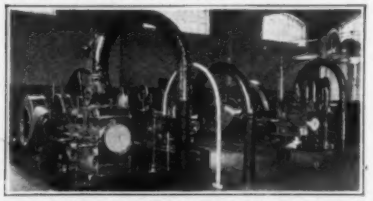
GREATEST BREAD SLICER VALUE IN THE WORLD

BRUNSWICK-KROESCHELL REFRIGERATION

in Detroit Hospitals

Receiving Hospital City of Detroit

Brunswick-Kroeschell Refrigeration serves 11 hospitals in the Detroit district. These institutions have a bed capacity totaling about 5,000. Included in this group are the well known Harper Hospital, Herman Kiefer Hospital, University of Michigan Hospital, Henry Ford Hospital, Grace Hospital, Municipal T.B. Sanatorium, Highland Park Hospital, Wyandotte Hospital, Receiving Hospital, Wayne County Morgue, and Michigan State Psychopathic Hospital.



Brunswick-Kroeschell Refrigerator System Installed in Henry Ford Hospital, Detroit.

BRUNSWICK-KROESCHELL COMPANY

Refrigerating & Ice Making Machinery

NEW BRUNSWICK, N.J. - CHICAGO, ILL.

BRANCHES, AGENCIES AND SERVICE IN PRINCIPAL CITIES

QUALITY & ARISTON

Both Have Real Meaning

Ariston Quality is fixed and unchangeable.

Every item of food products bearing the Ariston Brand is of highest possible grade — **always** — regardless of market conditions.

The price is the changeable feature — varying as the markets require, but always returning us a fair profit.

We **do not** and **will not** "shade" Ariston Quality.

We **do not** and **will not** meet purely price competition with Ariston goods.

See in this a real protection for you as a buyer.

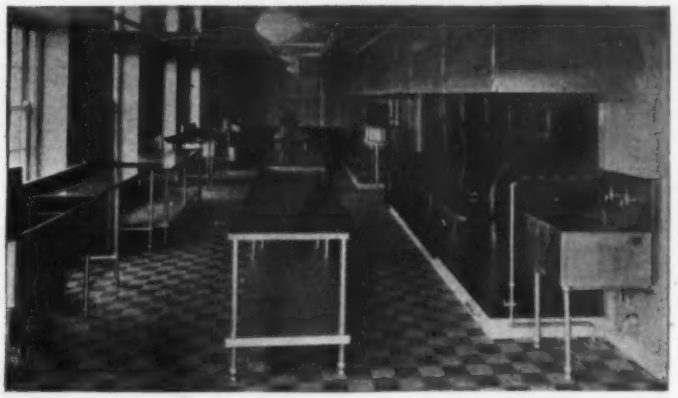
ARISTON FOOD SPECIALTIES

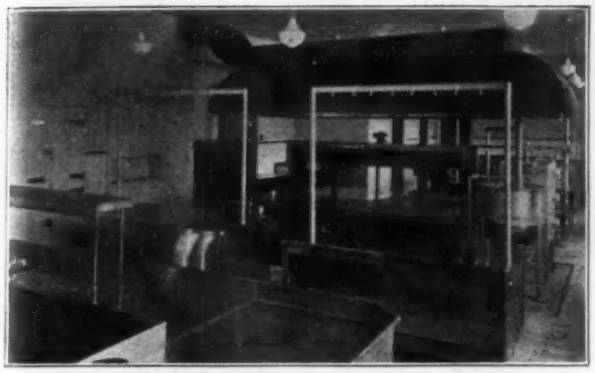
STANDARDIZED --- FOR INSTITUTIONS

Gelatine Desserts -- Baking Powders -- Coffees and Coffee Extracts -- Teas and Tea Bags -- Cocoas and Chocolate Extracts and Flavors -- Spices and Herbs -- Pudding Powders -- Marshmallow Topping -- Malt Diastatic Malt

Calumet Tea & Coffee Co. 409-411 W. HURON ST. CHICAGO --- ILL.

Hospitals and Institutions require the best in Cooking Equipment





Note the excellent arrangement of the various units as shown.

Ease of operation is further obtained through a careful selection of the right kind of equipment to produce a well balanced food service department.

CLEVELAND RANGE INSTALLATIONS

fully meet the most rigid requirements.

Well planned—because our Engineering Department is skilled in working with architects and owners to produce operating efficiency.

Well built in every detail—because "C. R. Co." equipment is designed and constructed in our own plant under experienced supervision.

From the day you place your order to the day of completion, Cleveland Range installations proceed "on schedule." We work with you.

A FEW OF OUR RECENT INSTALLATIONS

St. Thomas Hospital, Akron, Ohio
Mercy Hospital, Cadillac, Mich.
St. Luke's Hospital, Cleveland, Ohio
Notre Dame College, So. Euclid, Ohio
Parmadale, Parma, Ohio

THE CLEVELAND RANGE COMPANY

Manufacturers and Distributors of
"Everything for the Kitchen and Dining Room"
General Offices and Factory,
CLEVELAND, OHIO

Send the Coupon Today

Gentlemen:

We would like to hear further with reference to your facilities to serve us on.....
Send us your latest Catalog.....
We are in the market for.....
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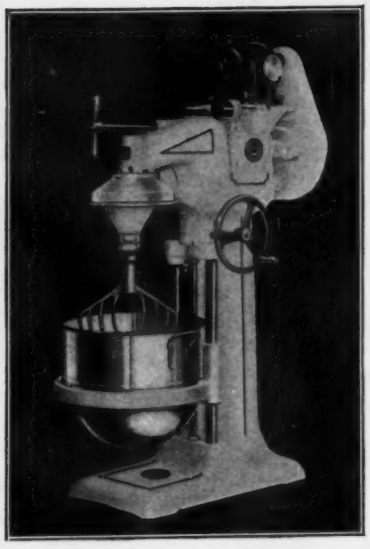
Institution.....
Care of.....
Address.....



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Practically Every Hospital of
Recent Construction
Has Specified

READ
VERTICAL
MIXERS

because of their
Sturdy Construction
Simplified Design
Freedom from Trouble
and Noiseless Operation

Insist upon seeing the new 1929

READ VERTICAL MIXER
the new silent machine

READ MACHINERY CO., YORK, PA.

St. Charles Seminary, Overbrook, Pa.
Paul Monaghan, Architect

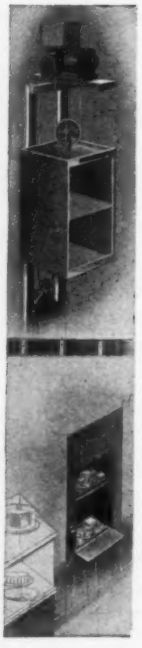
DOUGHERTY KITCHENS
mean greater satisfaction

The kitchens in the newly completed St. Charles Seminary, Overbrook, Pa., are completely equipped by Dougherty.

To a growing list of leading institutions throughout the country Dougherty Kitchen Equipment has meant greater reliability, economy and satisfaction for over 76 years.

Write for catalog

W. F. DOUGHERTY & SONS
Everything For The Kitchen
1009 ARCH ST. PHILADELPHIA



"ELECTRIC" HOSPITAL DUMBWAITERS

Push button control electric motor operated dumbwaiters provide the quickest, safest and most efficient way of handling the hospital food problem.

The "Electric" is safe, silent and costs very little to operate. The "Electric" is manufactured in a number of sizes with any type of push button control.

The "Electric" installed cost is surprisingly low. It is sold installed or F.O.B. factory. It can be installed by local mechanics from the very complete instructions and drawing we supply.

Let us send you our catalogue

DUMBWAITERS "Electric" DUMBWAITERS

ELECTRIC DUMBWAITERS INC.

BUFFALO, N.Y.

HOBART *Food Preparing* MACHINES

MODEL 30

MODEL 10

MODEL M-80

FOOD CUTTER

POTATO PEELER

Hobart *gives more for the dollar!*

THE Hobart M-80 Super Mixer is *sturdy—strong—powerful.* In addition to mashing potatoes, mixing dressings, etc., it is an *all 'round* cake, pastry and sweet dough mixer which also handles bread or roll dough by the high speed method. This machine mixes a half-barrel batch of bread dough with the same apparent ease that it beats a few eggs.

Then, too, there are the smaller models—a size for every possible need. The model numbers indicate the capacities of the mixers in quarts. They are furnished in 5, 10, 15, 20, 30, 60 and 80 quart sizes.

Hobart Potato Peelers pare large quantities swiftly and *incomparably* from every viewpoint.

The Food Cutters do their many tasks in seconds and minutes. They are lightning-like capable servants that never tire, sicken—never lie down on the job—*never quit.*

Hobart makes a large assortment of Food Preparing Equipment which is sold *by leading kitchen outfitters.*

ADDRESS

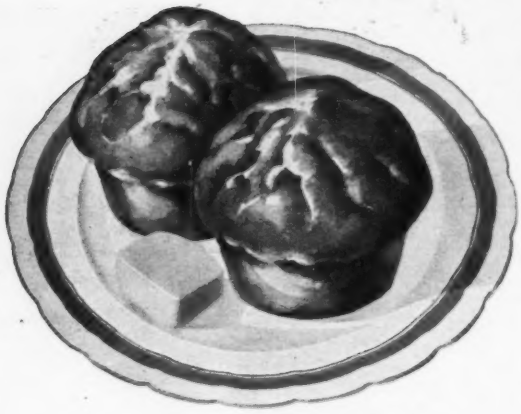
The HOBART MANUFACTURING CO.

Dept. P-3

TROY . . . OHIO

WRITE FOR OUR LATEST BOOKLET ON HOBART FOOD PREPARING MACHINES

ALL-BRAN— Approved by the Medical Profession for the diet



Many diseases can be traced to constipation. Also, many foods can be blamed for constipation. Those lacking in bulk are the offenders.

Kellogg's ALL-BRAN is the physicians' ally when constipation is the problem. For, when included in the diet, it supplies the necessary bulk and roughage to promote peristalsis.

ALL-BRAN is 100% bran. Physicians, nurses and dietitians know it can be depended upon to accomplish complete results. No part-bran product can do the same.

When ALL-BRAN is added to waffles, muffins, puddings, stuffings, the results are delicious as well as healthful. When served with milk or cream, with fruit or honey added, ALL-BRAN is a delicious cereal. Also pleasing when sprinkled on cereals or into soups.

Made by Kellogg in Battle Creek, Michigan. Sold by all grocers. Served everywhere. A full-sized package of ALL-BRAN will be mailed free to any doctor upon request.

Kellogg's ALL-BRAN

Indispensable in the Sick Room

Amphion sanitary trays are ideal for many uses in the sick room. When not in use they are easily folded and may be placed away conveniently.

Sturdily constructed of either cadmium plated steel or Wear-Ever aluminum. Cadmium-plated trays are furnished in colors only—size, 15⅜ x 20¾. Aluminum trays are furnished in colors or plain metal finish—sizes, 15⅜ x 20¾ and 16½ x 22½.

Complete information and prices on request.

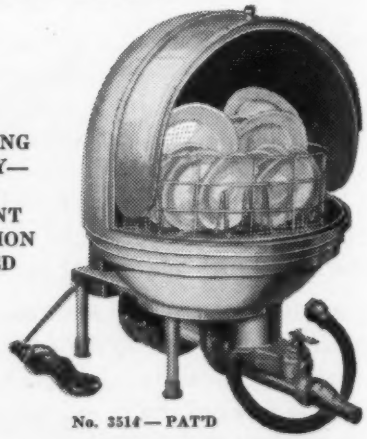
The Hardware Specialties Mfg. Co.
Bruce Ave., Stratford, Conn.

"KLEEN-KWICK"

THE EFFICIENT ELECTRIC HOSPITAL DISH WASHER

Especially Adapted For
DIET KITCHENS

NO PLUMBING NECESSARY— UNLESS PERMANENT INSTALLATION IS WANTED



No. 3514 — PAT'D

FRIEDLEY-VOSHARDT CO.
733-37 S. Halsted St.
CHICAGO, ILL.
MILWAUKEE, WISCONSIN—853 Grant Boulevard
ST. PAUL, MINNESOTA—Room 28, Ryan Building

When your refrigerating system is designed and is installed by YORK engineers, you are assured absolute control of temperature continuously and economically.

In equipping new buildings and in redesigning present systems YORK engineers are capable and experienced.

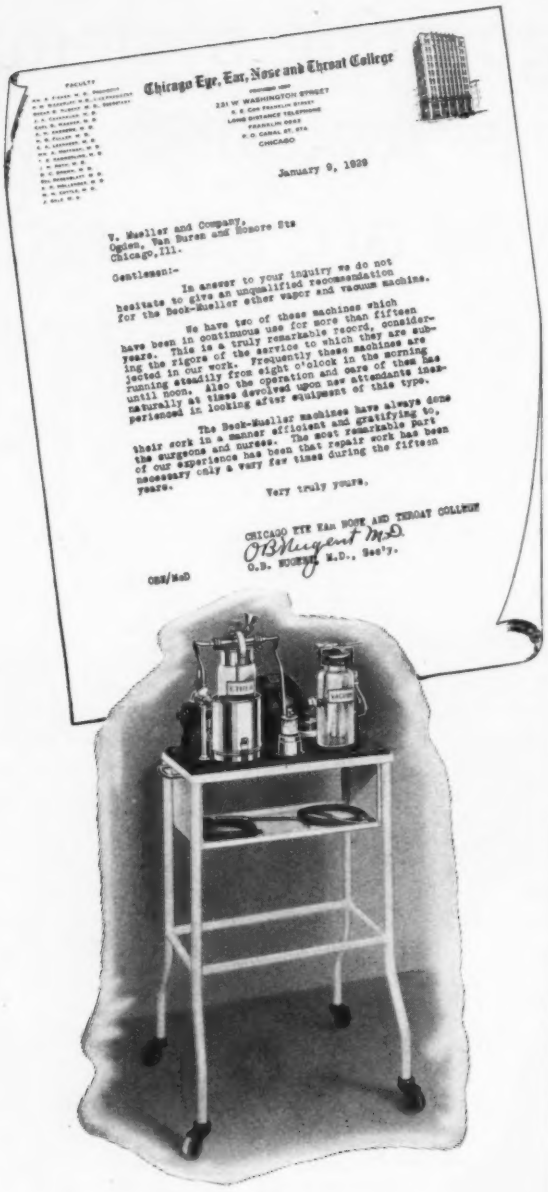
YORK Semi-Enclosed Carbon Dioxide Compressor with synchronous motor mounted direct on the compressor shaft—used in those installations requiring larger amounts in refrigeration.

For positive, low-cost refrigeration requiring least care . . . consult us.

YORK

ICE MACHINERY CORPORATION

YORK PENNA



Chicago Eye, Ear, Nose and Throat College

January 9, 1929

V. Mueller and Company,
Ogden, Van Buren and Honore Sts
Chicago, Ill.

Gentlemen:-

In answer to your inquiry we do not hesitate to give an unqualified recommendation for the Beck-Mueller ether vapor and vacuum machine.

We have two of these machines which have been in continuous use for more than fifteen years. This is a truly remarkable record, considering the rigors of the service to which they are subjected in our work. Frequently these machines are running steadily from eight o'clock in the morning until noon. Also the operation and care of them has naturally at times devolved upon new attendants inexperienced in looking after equipment of this type.

The Beck-Mueller machines have always done their work in a manner efficient and gratifying to, the surgeons and nurses. The most remarkable part of our experience has been that repair work has been necessary only a very few times during the fifteen years.

Very truly yours,

CHICAGO EYE EAR NOSE AND THROAT COLLEGE
O.B. Nugent M.D.
O.B. NUGENT, M.D., Sec'y.

OBN/McD

THE BECK-MUELLER
ETHER VAPOR and VACUUM Apparatus

Permit us to call your attention once again to that sentence, "We have two of these machines which have been in continuous use for *more than fifteen years.*"

The Beck-Mueller Apparatus provides a continuous ether vapor anesthetic. At the same time, with its gentle, sure suction, it withdraws blood and other interfering substances from the operating field.

Standard equipment in hospital operating rooms for nearly twenty years.

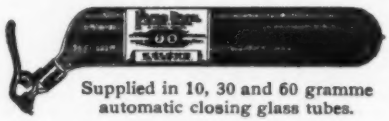
V. MUELLER & CO.

Send for pamphlet. No obligation.

Ogden Ave., Van Buren and Honore Sts. CHICAGO

KELENE Pure Ethyl Chloride

For Local and General
ANESTHESIA



Supplied in 10, 30 and 60 gramme automatic closing glass tubes.

Also in 3 and 5 Cc. hermetically sealed glass tubes.

The automatic closing tubes require no valve. Simply press the lever.

Manufacturers
FRIES BROS.
92 Reade St., New York

Sole distributors for the United States and Canada
MERCK & CO. INC.
Main Office: RAHWAY, N. J.

"Excelsior Safety Aseptic Syringes"

McElroy Mineral Packed.

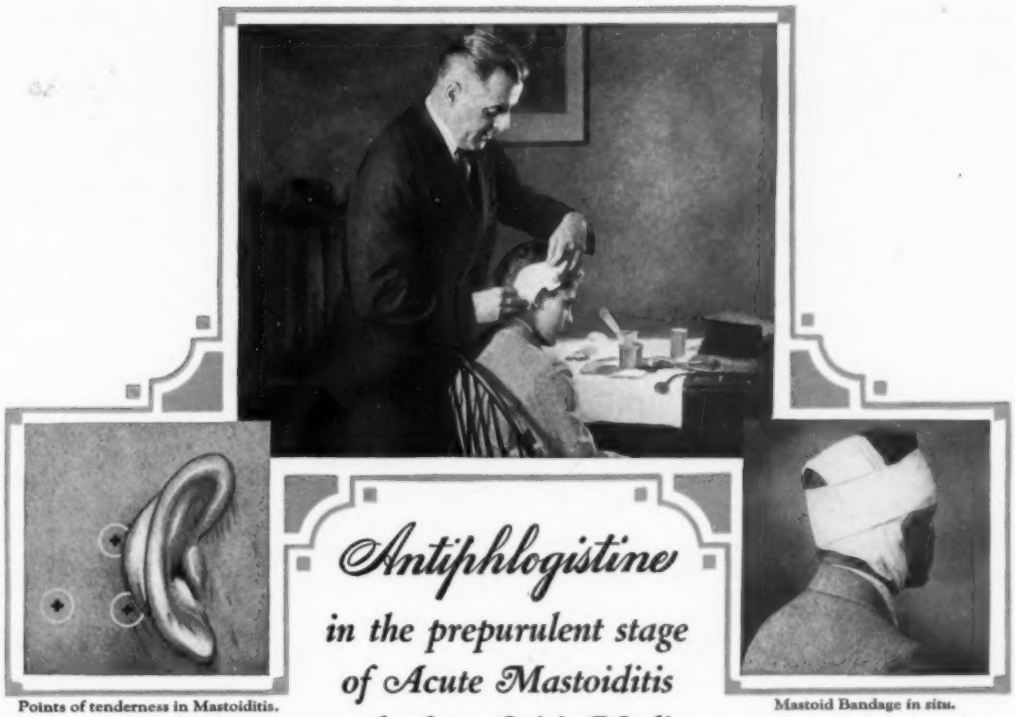
Made in Variety of Styles and Sizes to Take Care of Every Need.

□ □

Illustrated folder sent on request.

Order through your regular Hospital Supply House.

MEDBRIDGE SUPPLY COMPANY
2nd and Gore Streets, East Cambridge, Mass.



Points of tenderness in Mastoiditis.

Mastoid Bandage *in situ*.

Antiphlogistine

in the prepurulent stage of Acute Mastoiditis and Acute Otitis Media

APPLIED over the affected ear, hot applications of hygroscopic Antiphlogistine constitute valuable adjuncts to the general treatment; will often suffice to allay the painful symptom and may do much in the way of aborting the suppurative process.*

By virtue of its thermopenetrability and the marked hygroscopic action of its c. p. glycerin, Antiphlogistine will diminish the passive congestion about the Eustachian tube, thereby slowing down the rapidity of the infectious process. With consequent lowering of pressure in the tympanic cavity, bulging of the membrane is reduced, drainage is promoted, bringing thereby marked relief from pain and discomfort.

In *acute mastoiditis*, Antiphlogistine should be applied hot and thick over and beyond the affected mastoid process. The decongestive and analgesic action of this plastic dressing may be considerably intensified and prolonged by covering over with oil silk or rubber sheeting.

*"Heat *to the mastoid* usually is more grateful to the patient than cold". J. F. Barnhill, M.D., F.A.C.S. *"The Nose, Throat and Ear"*, 1928

Speaking of the kaolin dressing, Fantus (*"The Technic of Medication"*) points out that this "has the advantage of being non-fermentable, even bacteriostatic, and of clinging *to the mastoid* or the chest when other similar applications are more difficult to retain in place."

THE DENVER CHEMICAL MFG. CO., 163 Varick Street, New York City

In Acute Affections of the Upper Respiratory Tract

Antiphlogistine

applied locally, hot and thick, is usually very grateful to the patient and constitutes a distinctly beneficial adjunct to the general treatment of these conditions.

Tonsillitis *Pharyngitis* *Laryngitis*

In the acute affections of the pharynx and larynx, Antiphlogistine applied to the neck will serve to diminish the pain and reduce the swelling and congestion of the pharyngeal and laryngeal tissues. The Antiphlogistine dressing, being plastic, may be fixed in position by an adhesive strip applied over the vertex, a procedure which insures mechanical support, rest and prolonged thermotherapeutic action.

Sinusitis

In the acute affections of the nasal accessory sinuses, several dressings of hot Antiphlogistine applied to the forehead will decongest the swollen mucous membrane, reduce the edema, facilitate drainage, and bring marked relief of local discomfort.

THE DENVER CHEMICAL MFG. CO.,
163 Varick Street, New York City.

You may send me descriptive literature, together with sample of Antiphlogistine for clinical trial.

_____ M.D.

Address _____

City_____ State_____

THE MARK OF SERVICE

YOUR Glassware Supply House will serve you with samples and prices of Tumblers — all sizes and designs. Guaranteed to Outlast them all. The Whole Glass Strongly Constructed. Costs less, but lasts longer.

HAZEL-ATLAS GLASS CO.

WHEELING, W. VA.

WORLD'S · LARGEST · TUMBLER · MANUFACTURERS

CENTURY GIANT MIXERS

4 SPEED SILENT OPERATION

4 SIZES 15 to 80 qt. CAPACITY

FOR HOSPITAL BAKE SHOP AND KITCHEN USE —

Century Mixers produce greater yield, they work faster, waste less and are much more sanitary than human hands.

They mix, whip, mash, slice, grate, crumb, strain and perform many other labor-saving duties.

May also be had with steam jacket for heating, boiling or cooling while mixing — many exclusive mechanical features.

Write for descriptive bulletin

USE CENTURY MIXERS FOR:

Beating eggs
Cold slaw
Croquettes
Cream sauces
Crumbing bread
Custards
Fish cakes
Fruit sauces, jams
Fritters
Gravy stock
Griddle cakes
Grinding spices
Grinding meats
Hash
Ice cream
Jellied meats
Mashed potatoes
Mayonnaise
Meat loafs
Omelettes
Pie fillers
Puddings
Purees
Rubbing up cheese
Salads
Sausage
Slicing fruits
Slicing vegetables
Soup stock
Straining soups
Sweet potato pies
Waffles
Mixing doughs
Confectionery
Cake batters
Cream puff fillers
Cake fillings
Fruit sauces
Frozen custards
Meringue
Mincemeat
Rolls, muffins, etc.
Whipping cream

AND MANY OTHER EVERYDAY USES

The CENTURY MACHINE COMPANY

4436 Marburg Ave., Oakley, Cincinnati, Ohio

Thorner's Silver Service

Illustration features Thorner's Improved Three Compartment Hot Water Plate. Tea Set with reinforced bands, hard metal hinges, Silver Soldered and one-piece unleakable bottom. Covered Soup Cup with Silver Soldered handles. Sherbet Dish, Gravy Boat, Individual Napkin Ring and Tray Marker, Bud Vase, Salt and Pepper Shakers and Superior Grade Sectional Flatware.

Illustrations and estimates submitted upon request.

Thorner Bros.

Importers and Manufacturers of Hospital Supplies

OUR NEW ADDRESS:
135 Fifth Ave., New York City.

J&J Tray Service Wagons

THESE wagons are used for transporting food from central distributing point. They are indispensable in ward service, making it possible to serve a number of patients each trip.

Mounted on the famous J&J rubber-tired, ball-bearing casters, with 6 in. and 12 in. wheels. Noiseless, easy running, and will turn in own length. Standard finish—Aluminum Bronze.

Write for Catalog of Hospital Service Wagons

JARVIS & JARVIS, INC.

205 So. Main St. PALMER, MASS.

WORLD'S LARGEST MANUFACTURER OF REFRIGERATORS FOR ALL PURPOSES

NEW— *by McCray*
Porcelain Lined

HERE it is—the newest and finest refrigerator in all McCray history, for hospitals and institutions—the McCray No. 332.

Gleaming white porcelain fused on steel provides an interior easy to keep spotless and sanitary. The four-inch walls are insulated with pure corkboard sealed with hydrolene, and two courses of water proof paper.

Five-ply laminated oak with flush panels makes a handsome and durable exterior. Hardware is of the latest self-closing type, bronze heavily nickelled. Piano casters enable easy moving.

For electrical or mechanical refrigeration of any type, or ice. The cooling unit can be installed immediately, without changes. With machine or ice, McCray quality insures thorough refrigeration at low cost for operation.

Note the convenience of the various compartments and the ample storage space—the cubic capacity is 30.5 ft. The No. 332 embodies our 40 years' experience in building fine refrigerators to meet the specific need in hospitals and institutions.

See the No. 332 and other models at the McCray salesroom, in your city. Or write direct for complete information and catalogs of equipment to meet your particular needs.

McCRAY REFRIGERATOR SALES CORPORATION, 965 Lake St., Kendallville, Ind.
Salesrooms in All Principal Cities *(See Telephone Directory)*

McCRAY REFRIGERATORS

Thesco

REFRIGERATORS of QUALITY

Are the choice of many of the world's most modern Hospitals. They pay—in first costs, in maintenance, in long life, satisfactory service.

THE GOOD Samaritan Hospital, as well as many other Hospitals of national and international prominence, has accepted THESCO Refrigerators as the solution to their problems of efficiency, sanitation and service, in preserving food in its original freshness. 51 Refrigerators, as well as Laboratory Equipment, designed, manufactured and installed by THESCO, is our accomplishment at the Good Samaritan Hospital, one of the country's largest and finest Hospitals.

THESCO REFRIGERATORS

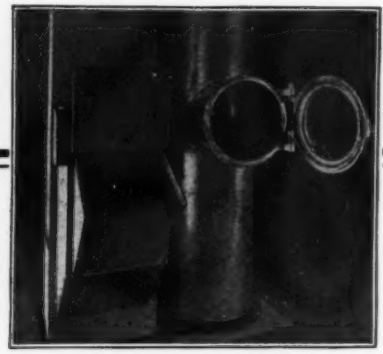
are efficient with ice or electrical refrigeration. They are guaranteed to work perfectly with either. Our Engineering Department will help you solve your refrigeration problems. Over a half century of experience gained from nation-wide contracts will benefit you. Write today for consultation. This service is gratis. No obligation.

Catalog HP-85 is very valuable. Send for your copy now.

THE C. SCHMIDT CO.

Established 1870 — THE HOME OF THESCO PRODUCTS — Incorporated 1907

John and Livingston Sts., CINCINNATI, OHIO.



The Most Efficient Hospitals Are Equipped With

HASLETT CHUTES
for Linen and for Rubbish!

Haslett Chutes are valued equipment in hospitals famed for their efficiency.

Eliminate Trucking — Cut Elevator Expense

Not only are *Haslett Linen Chutes* crack proof, chip proof and rust proof, but their intake doors ornament your corridors. *Haslett Rubbish Chutes* are so constructed that they do not clog or allow a back draught of dust. Drop us a card. It will save your operating expense.

HASLETT CHUTE & CONVEYOR CO.
OAKS, PENNA.

Philadelphia	Cleveland	Chicago
New York	Pittsburgh	San Francisco
Los Angeles	Boston	Baltimore
Dallas	Montreal	St. Paul
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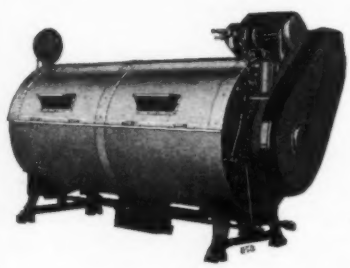

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F.O.B. BOSTON
42" x 84"
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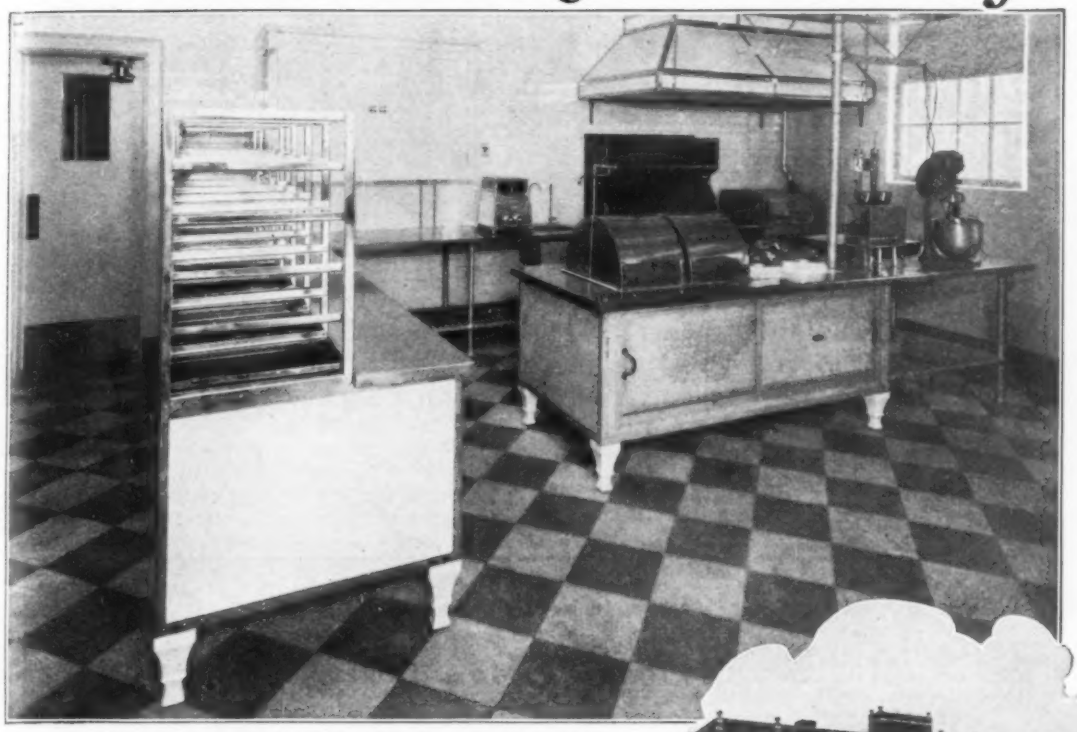

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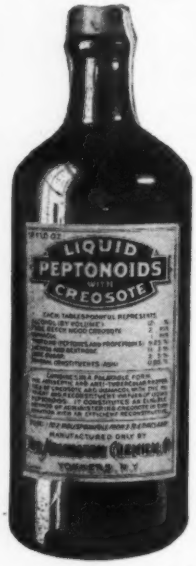

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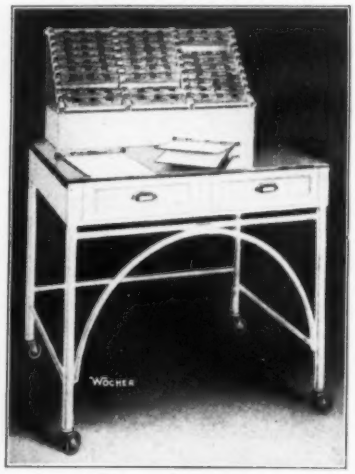

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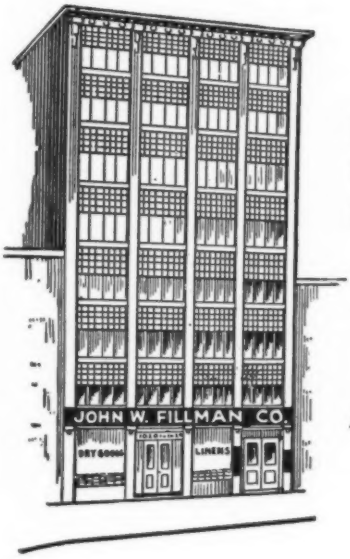

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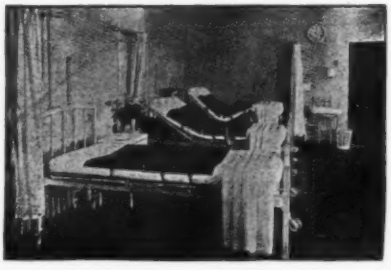

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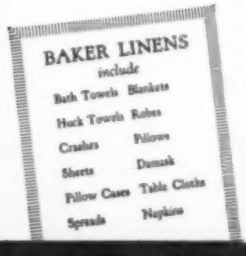

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Official Magazine of the

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OF THE UNITED STATES AND CANADA

General and Editorial Offices of the Catholic Hospital Association: Rooms 808-10 Michigan-Ohio Building, 612 North Michigan Ave., Chicago, Ill.

Vol. X MARCH, 1929 No. 3

TABLE OF CONTENTS

Cover: French Hospital, New York City
I. Introducing the First Building Number 87
Our Building Number 87
C. B. M.
Building Considerations 87
Sisters of Charity of the Incarnate Word
Efficiency, Comfort, and Cost 88
Sisters, Poor Handmaids of Jesus Christ
Some Important Features 88
St. Elizabeth Hospital, Lafayette, Ind.
II. Professional Service in Building 89
The Preliminary Survey 89
T. R. P.
The Function of the Hospital Consultant in the Consummation of a Building Program 92
William H. Walsh, M.D.
The Hospital Superintendent and the New Building: A Symposium .. 97
Administration Offices 97
Mother M. Concordia
Central Utilities 98
Sister M. Rose
Planning the Floor Layout 101
T. R. P.
Professional Service Units in Hospitals 102
M. T. MacEachern M.D.
The Hospital Architect 105
Richard E. Schmidt
The General Contractor 109
D. A. Garber
III. Recent Tendencies in Hospital Architecture 112
Tendencies Observed in the East 112
L. H. Lewis
Tendencies Observed in the Middle West 116
Edgar D. Martin
Tendencies Observed in the Ohio Valley and the South 120
H. Eldridge Hannaford
Mary Immaculate Hospital 122
A Visitor—M. C. S.
A Homelike Hospital—Columbus Hospital, Seattle, Wash 123
Joseph Brugman, M.D.
Editorials 124
IV. Discussion of Particular Features 126
Hospital Elevator Service 126
E. Hollander
Color Harmony in Hospital Lighting 128
Mrs. Mary Wren Steward
A Correction 129
Refrigeration in the Hospital .. 130
George Smedal
Hospital Power Plant as an Important Factor in Building . 132
Henry L. Eastman
Utilization of Fuel With a View to Economy 132
S. R. Lewis
V. Special Requirements 134
Interior Architecture as a Basic Aid to Beauty in the Hospital . 134
Tendencies in Construction of Schools for Nurses 137
J. C. Murphy
The Financial Consideration of an Expansion Program 139
M. R. Kneift
The Nurses' Corner 32a
The Wrong and the Right of the Graduate Nurse 32a
Fred B. Kilmer, Ph.C.
Dr. Oliver Kamm Receives Prize 42a
Hospital Brevities 44a
Of Interest to Doctors 52a
State Aid to Hospitals 59a
Clement W. Hunt
Surgeon General Reviews World Health Conditions 64a
United States Public Health Service
Chemistry in Health and Disease 72a
J. W. O'Brien, M.D.
With the Manufacturers and Dealers 78a

The First Building Number

This is the first issue of HOSPITAL PROGRESS devoted entirely to building problems. No one interested in building can fail to derive help from a study of these pages.

Section II, treating of professional service, outlines the services of the consultant, the architect, the superintendent, and the contractor, showing how each of these services is of definite value and how necessary is close coöperation.

Section III, on recent tendencies, speaks for itself. A builder of anything from a garage to a state house first inquires how others are planning similar buildings.

Each of the articles in this building number has an important message for you; each article is written by a specialist; each one deals with a particular problem.

The plan for this issue was developed by Rev. Father Moulinier from an original outline prepared by Mr. M. A. Higgins, who, at the time, was teaching hospital architecture at Marquette University.—E. W. R.

THE BRUCE PUBLISHING COMPANY

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Her patients look forward to her cheerful smile—and the sympathetic touch of her cool hand. And few of those sick people ever realize how much effort it often takes for her to summon that friendly, comforting smile.

THE tired NURSE

—What can we do for her?...

Recently—in a searching article in *The Modern Hospital*—Dr. J. J. Golub, Director of Beth Moses Hospital in Brooklyn, N. Y., asked that question. *Comfortable floors* was one of the doctor's answers to his own query. Hardness of floors was, he found, an important cause of fatigue.

"EACH kind of flooring, of course, has its advantages and disadvantages and its proper place," he pointed out, "but from the point of view of comfort to the nurse and patient and as a lesser source of fatigue, rubber, *cork* and *linoleum* are preferable to the harder types of flooring."

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The Nurses' Corner

THE WRONG AND THE RIGHT OF THE GRADUATE NURSE

Fred B. Kilmer, Ph.C., St. Peter's Hospital School of Nursing, New Brunswick, N. J.

"Yes, they are awful, but in this case we must have one," said a physician to a husband who had demurred against employing a nurse for his wife.

"I would not let nine out of ten of them come near one of my patients," declared another doctor.

MILITARY FUNERAL FOR NURSE

Miss Anna C. Maxwell, pioneer nurse, and known as the "American Florence Nightingale," was recently buried at Arlington National Cemetery, Washington, D. C., with full military honors. She was a veteran of the Spanish-American War and the former superintendent of The Presbyterian Hospital School of Nursing in New York.

The photo shows ceremonies at the grave with Chaplain Vaughn of Fort Meyer officiating.

In the public press and on the street, we hear aspersions against the graduate nurse. A few of them, some just and others unjust, may be cited as follows: Unwarranted egotism; a casual attitude toward their true mission and work; want of ability to apply the knowledge and power of their training; lack of ability to think; lack of initiative. If a problem arises not met with during their training career, they seem unable to work it out.

On the other hand, the doctors claim the nurse takes too much on herself, she steps over the dividing line between the duties of the physician and the duties of the nurse.

In emergency cases the nurse, at times, seems unwilling to carry on the simpler tasks of the hospital or home. She seems to regard it as an offense against her dignity to be asked to clean a utensil. She will keep a patient waiting while she finds an orderly or a messenger to bring a wanted article.

Nurses make life unpleasant for themselves and for others through their contemptuous treatment of minor employees in the hospital and in the household. At times, they show a lack of courtesy, judgment, and good sense in their attitude toward patients in the lower strata of society.

Strong criticism is made against the nurse, and still stronger vindication might be made in her favor. The profession of nursing is so new that we do not know how to place the nurse in the scheme of things. Patients need to be trained as well as do the nurses. Under hospital regulations with a staff of superintendents, interns, and orderlies, the sick readily conform to discipline. In the home, it is different; here the nurse is apt to be looked upon as a guest, an intruder, a servant, or an evil.

Some men do not respond readily to the ministrations of a woman nurse. A man prefers to wash and to shave himself, to comb his own hair, and perform his toilet unassisted. He does not like to be spoon fed. A nurse fussing around his bed embarrasses him, and he wants to close his eyes and cover his head until she leaves. A medical man, well accustomed to nurses, said that in a prolonged and serious illness he was very much embarrassed when a cot for the nurse was placed in the room with him.

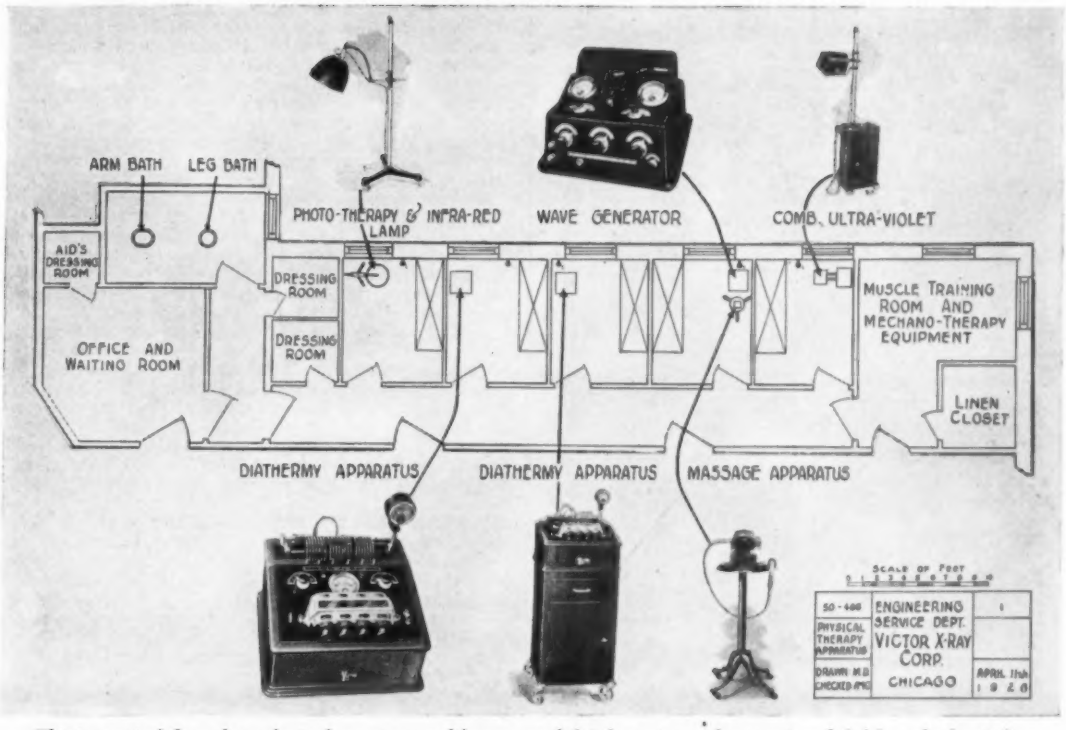
Quite contrary is the statement that the advent of handsome and vivacious young women into the profession of nursing has made surgical operations a popular sport among men. A man who fought for months against going to a hospital because of a fancied dislike of being nursed, finally succumbed. He became charmed and thereafter, whenever he felt the need of a change, he 'phoned the hospital and secured a room in lieu of going to a health resort.

The silly, thoughtless gossip of the nurse often upsets the work of the doctor, and retards the progress of the patient.

The trained nurse has become a public figure and thus a subject for discussion. Journals, medical and lay, devote pages to her. She has become a character for the fiction writer and a theme for the bumptious scribbler, such as the present writer. During her years of training, rules of conduct fill the curriculum. Upon graduation, gossipers discuss her from the soles of her shoes to the top of her head and back again. If the nurse attempted to follow the "what to do" and "what not to do" that is laid down for her, she would have little time for the care of the sick. It is fortunate for suffering humanity that the trained nurse is a woman, and that with a woman's inherent right she goes about her tasks in a woman's way, and the patients get well.

Not a great while ago, the nurse wore garments of design and color that would not show dirt spots, or pus or

(Continued on Page 34a)



This is a typical floor plan submitted as a suggested layout for the Physical Therapy Department of a medium-size hospital, and supplements a list of specifications and other detailed information and suggestions helpful to the hospital superintendent, building committee and architect. Layouts for an X-ray Department are handled in a similar manner.

Victor Hospital Service Bureau

THAT the Victor Hospital Service Bureau has filled a real need is very evident by the expressions of appreciation received from hospital officials in all parts of the country.

The reason is simple enough. They have profited by the experience of the Victor organization, accrued over the period of a third of a century in the design, manufacture and installation of X-ray and physical therapeutic apparatus. Hospital superintendents and building committees have found the suggestions of Victor engineers a great help in the planning of an X-ray or Physical Therapy Department, because the suggestions were based on a thorough knowledge of all the factors that enter into this highly specialized field.

True economy in the building and equipping of a hospital is not determined by the lowest costs, but by the quality of the service which such equipment renders to the members of the staff and patients. That is the keynote of the Victor Hospital Service Bureau. It assures the institution the greatest amount of satisfaction in end results, for every dollar invested.

A survey of your X-ray or Physical Therapy Department needs by the Victor Hospital Service Bureau will help your institution as it has helped many others. It will point out the most practical and economical solution to each problem; as to type of equipment best suited for the particular type of service your institution is rendering, and the manner of installation of such equipment according to the space available.

Such a survey includes a detailed and comprehensive floor plan, so that the suggestions submitted may be visualized. Every detail is provided for in advance and when the installation is made accordingly, the department may function to advantage right from the start.

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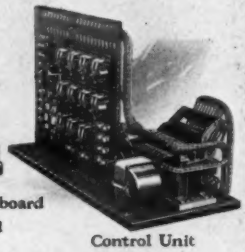
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Consideration for their simple construction—exclusive features, and dependable service, Holtzer-Cabot Signaling Systems are specified by leading architects and engineers.

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are the very latest developments in labor and time saving signaling and protective systems.

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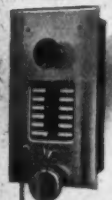
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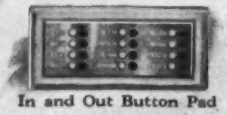
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(Continued from Page 32a)

blood. This was a saving of laundry and was helpful in promoting the spread of infection. Nowadays, when on duty, the nurse's uniform is of spotless white, it looks clean and it is clean. It inspires confidence and sense of well-being. The nurse may well feel that the uniform is a garment of utility, she may be proud of it, but not too proud. She will do well to look upon it as a symbol of responsibility, a part of a particular calling. When worn in public, it at once marks the wearer as a member of a caste.

Doctors long ago discarded their peculiar hat and cape, they abolished the sword and the cane; even the military and the police discard their uniforms when off duty. If the nurse wore a prescribed dress on the street, gossip might intimate that she was trying to make herself noticeable, trying to make people believe she was superior to ordinary people. We want the nurse to look the part while on duty, but off duty she should be an individual. When not on duty, she may at pleasure follow the fashions. The nurse must maintain her place in the world, not by her appearance or her dress, but by her life and her actions. Nurses like to do the same things that other women do. We hear that nurses put henna on their hair, dye their eye lashes, enamel their faces and put rouge on their lips. The nurse, however, should have learned in her studies in dermatology that the modern complexion compounds of mercury, lead, bismuth, and chalk, are destroyers of and not makers of beauty. She should have learned that cleanliness, right living, simple measures of hygiene are the real makers and preservers of beauty. If this is true, why plug the pores of a beautiful skin with cheap dope from the paint factory?

Journals have discussed the question of smoking by nurses. Smoking is one of the worldwide woman's fads. Many women carry smoking to excess. Smoking is a man's sport and not a particularly delicate one. It would be rather discouraging, if nurses were to smoke in the hospital, or in the sickroom, and it isn't done. In their materia medica, nurses have been taught that tobacco belongs to poisonous drugs, it acts upon the heart, brain, nerves, and digestive organs. Smoking is a drug habit. It leaves unsightly stains on the teeth and the fingers, and it does not improve the complexion.

The "Sairy Gamps" of Dickens' day were classed among the "old soaks." During their years of training, nurses study the effects of alcohol on the system. It has its place and an important one in medicine, and there it should remain, so far as the nurse is concerned. The present-day liquor is made of wood alcohol, fusel oil with a long list of poisons added. The nurse had far better go to the poison closet and make an intelligent selection.

The nurse is not qualified, neither has she any legal or moral right to diagnose or to apply treatment, except under the specific orders of a physician. The nurse who dispenses headache or other cures to her friends, acquaintances, or patients, is rendering to them an immoral, an illegal, and a dangerous service.

Recently, a nurse visited the nursing school from which she had graduated some years before. By her side walked a boy and a girl, in the rear, a man. She had come to show her family. Nurses are well fitted to take over the duties of motherhood and of homemaking. It is openly stated that many girls take up nursing to catch a rich patient for a husband, and failing in this they take on a poor doctor. They are privileged to follow either course.

A man who is sick is usually not in a fit condition to make a matrimonial alliance, he is usually weak, often childish, and, at times, morose. During his illness, he may think his nurse is the one person who can make him happy. This is the time the nurse should wait until her patient gets well. When he recovers, he will probably be quite a different person—and both may change their minds.

It is somewhat different in the case of a doctor and a nurse. They have seen each other at their best and at their worst, and are quite able to make an intelligent choice. Some doctor's take on a nurse for a wife in order to get an office assistant. This does not always work out well. What the doctor needs is a sympathetic adviser, and the maker of a home where he can forget the trials and worries of his profession. A nurse can well fill the bill.

In the maternity wards, the nurse shines out in the God-given spirit of motherhood. To her care is given a tiny mass of living flesh, the most tender, delicate thing in the world. The slightest untoward act may mar or injure that, which, with the right care, will shape itself into

(Continued on Page 36a)

Hospital authorities say that it is essential to have Johnson Heat And Humidity Control — The importance and value of uniform constant temperature and humidity which it maintains in each room as separately required day and night, and the manual attention its automatic certainty obviates are an efficiency and closer surety of exactitude invaluable to hospitals. And the twenty-five to forty per cent annual fuel economy which its automatic control produces is a huge saving in hospital administration cost, an item seriously confronting hospital management today. JOHNSON SERVICE COMPANY, MILWAUKEE, WISCONSIN— ESTABLISHED IN 1885— BRANCHES IN ALL PRINCIPAL CITIES

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THE ALL METAL SYSTEM: THE ALL PERFECT GRADUATED OPERATION OF VALVES AND DAMPERS: THE DUAL THERMOSTAT (NIGHT AND DAY) CONTROL— FUEL SAVING 25 TO 40 PER CENT PER YEAR. . . . .

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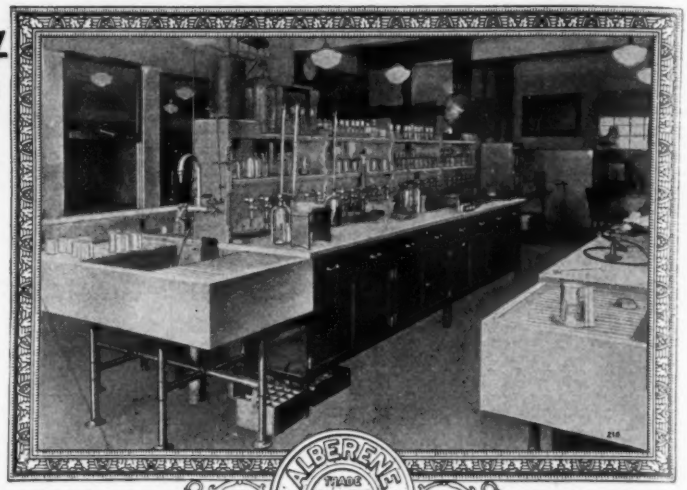

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(Continued from Page 34a)

a human being fitted for its lifework. Here when we see the nurse every hour and every minute watching with skilled eyes, bestowing scrupulous care upon the mother who has gone down into the depths and been brought back alive, when we see the nurse take into her arms a baby as though it were her very own, we may well bow our heads—we are on sacred ground.

In the children's wards, the nurse controls her charges with gentle dignity, she puts the restless child to sleep with a fairy story, she turns the ward into a playground. The little patient is hastened to recovery, and he looks back upon his hospital days with delight. Blessed is the nurse who can truly minister "to such as these."

In nursing parlance, a patient is a "case" to be recorded, indexed, carded, "cured," "improved," "discharged," or "died." Behind each card is a human being. Fortunate is the nurse who finds in the case record only a clue to living humanity.

Sickness upsets the tenor of family affairs, things ordinarily unimportant become grave when illness comes on. Personal worries, family worries, financial worries, worries of any kind thwart recovery. In the hospital, but more in private practice, the nurse is privileged to enter into the life of the patient, she becomes a part of the family.

The nursing school from which the nurse is graduated is, in most cases, a highly organized educational institution. Many of them are fully equipped with a staff of instructors with paraphernalia, apparatus, libraries, administration and recreation departments, they are equipped with all things necessary to give a thorough and complete training. All this costs the hospital a goodly sum. It has been stated that it costs the hospital from $1,000 to $1,500 per year to train a nurse.

In return the hospital receives only the services of an embryo nurse, quite analogous to the service of a trade apprentice. Even the service of the pupil nurse is a part of the training and requires expensive and competent supervision. Each graduate nurse is really indebted to the hospital in a goodly amount. She should repay this in part by a course in life that will reflect credit on the school, and she should, by all means in her power, foster the spirit of the institution which, in so great a measure, has made her career possible.

Writers have made a strong urge that the standards of the training school curriculum be raised by the addition of this or that course, laying of greater stress upon one study against another. There are advocates of more theory and less practice on the one hand, and of more practice and less theory on the other hand.

The nursing school is not the place to make scientists, bacteriologists, chemists, technicians, or pathologists, or what not, neither do we want specialized nurses. In the nursing school, we can only guide the nurse in the acquiring of knowledge. The best that instructors can do for the pupil nurse is to show her where and how to find knowledge when she has use for it.

The responsibility of the nurse increases by leaps and bounds. The diagnosis is carried out in the laboratory; treatment is administered by a machine. The doctor sees the patient only for a few minutes as he makes his rounds. The patient is under the nurse's charge every hour. The fate of the patient lies with the nurse. The word "cure" originally meant care; we want the nurse to administer such intelligent care as will lead to a cure.

The state, in granting the nurse a certificate entitling her to use the title "Registered Nurse," confers upon her certain obligations. She is to be held accountable in the fulfillment of the duties imposed upon her by her calling. Every patient committed to her care must receive the best that she is able to bestow. She must maintain good citizenship and render efficient service in the community in which she dwells. As with the physician, so with the nurse, neglect, incompetency, and unfaithfulness are punishable offenses.

The nurse at graduation is not a finished product. The signs and seals of her diploma certify only that she has received the required training; she has passed certain examinations; the foundation has been laid, but not the superstructure.

Beginning with the day of graduation, the road leads the nurse to the river of study and duty which ever rushes onward. The nurse must be well informed as to the progress of her own and allied arts. The healing art is changing constantly and rapidly, and through these changes progress is made in methods of diagnosis, therapy, prophylaxis, surgery, methods of application, theory and practice.

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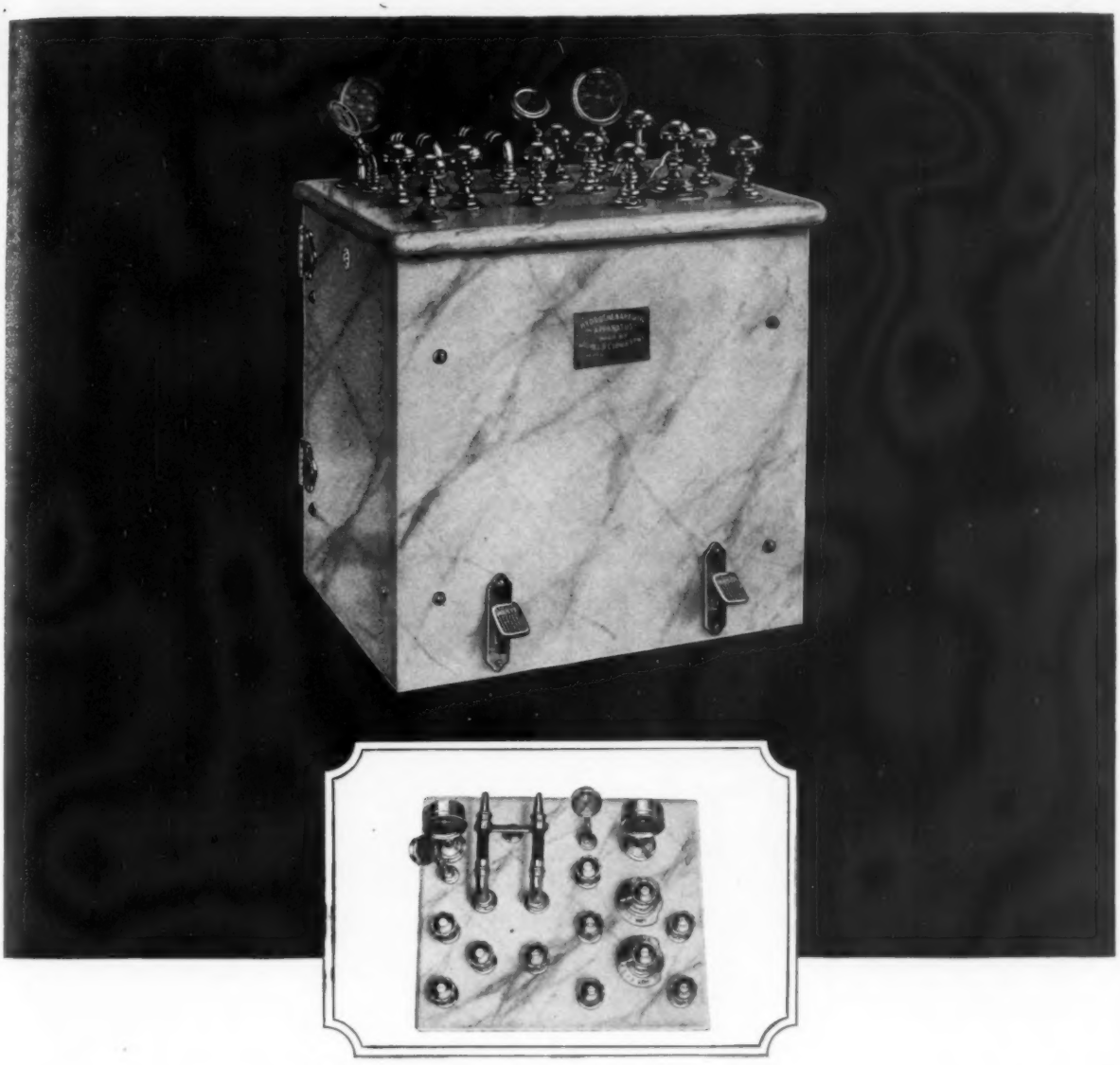

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Clow Hydrotherapeutic Fixtures are on duty in Canada, Cuba, South America and many other countries besides the United States.

Not only are Clow the largest manufacturers of Hydrotherapeutic Fixtures, but Clow Engineers have originated and designed many of the standard types of hospital plumbing in general use today.

Clow Engineers are available for information and advice on any phase of Hydrotherapy. Use this service at any time.

Above is shown side and top view of the Clow Control Table. Side view shows two foot pedals for operating drain valves. Top view shows arrangement of supply and control valve, temperature and pressure regulating devices.

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GOLD CUP
SCRUBBING COMPOUND
Means Clean Floors!

LUCKY FLOOR! Lucky if it's GOLD CUP Scrubbing Compound the janitor is using because *it removes only the dirt* and not the surface of the floor. After the floor dries, it is *clean, bright* and pleasing. GOLD CUP does not leave any greasy film to gather dust and dirt, so the floor *stays clean longer.*

Lucky janitor---who has GOLD CUP Scrubbing Compound to ease his work, for it cleans easily and rapidly.

Lucky hospital---whose superintendent buys GOLD CUP Scrubbing Compound, because GOLD CUP is not high priced and is truly economical.

Buy it---try it---profit from its use.
HOSPITAL DEPT.

The HUNTINGTON LABORATORIES
INCORPORATED
HUNTINGTON-INDIANA.

(Continued from Page 36a)

The nurse must keep abreast of the changing tide. With this it is expected that she shall be a person of culture, that she be versed in science, know something of literature, music, the drama, and the finer arts. They do not administer these things in spoonfuls, nor stick them on with plasters, but, to maintain the standard of the profession, the nurse must be a person of culture. Culture makes for happiness and well-being in any calling, and the lack of any essential element of culture places the profession of nursing on a rather low plane.

During the world war, near the front line, a hospital shack was crowded with Scotch laddies, shell-shocked, gassed, broken men. On a cot in the corner, there lay a bonny lad burning with fever, tortured with aches and pains, restless and sleepless. In came the nurse; she was humming in a low key, possibly to distract her mind from the horror and the distress. She lifted the head of the restless chap, gave him a sip of rather stale water from a canteen hanging near, shook up his pillows, laid him down, straightened out his blankets and passed her hand over his head, and said, "Now Sandy, ye'll go to slape." Perspiration gathered on his face and he slept.

When he awakened his buddy on a cot nearby exclaimed, "Sandy ye have been slapin'."

"Yes," said Sandy.

"Say Sandy," said the other, "Do ye know who touched yes?"

"Aye," Sandy answered, "it was me mither's own hand."

The companion sallied back to him," 'Twas not yer mither, 'twas that red-headed Irish nurse."

We want the nurse to be trained, educated, and efficient, but more than all we want her to have healing in her touch, and human kindness in her heart. We want her to be a nurse and to be a woman.

Alumnae Meets

St. Anthony's Hospital Alumnae, Rockford, Ill., held the regular monthly meeting of the organization on Jan. 3, at the home of one of the members.

First Graduation

The first graduation exercises in the school of nursing at the Queen of Angels Hospital, Los Angeles, Calif., were held in the chapel, on Jan. 23, in the presence of Bishop Cantwell. Rev. Julius Gliebe, chaplain and spiritual director, presented the diplomas and announced the names of the 19 graduates.

An Interesting Commencement

On Jan. 23, commencement exercises were held for nine nurses of St. Mary's Hospital, Hoboken, N. J., in the hospital chapel. One member of the class who was convalescing after an attack of scarlet fever was absent from the exercises. Dr. J. Schuck, who has been connected with the hospital for several years addressed the graduates. Rev. Father Brendan, O.F.M. and Dr. Joseph Londrigan also addressed the class. Due to the absence of Mayor Gustav Bach, who was to have presented the diplomas, Drs. Londrigan and Schuck made the presentations.

Musical and vocal selections were rendered followed by the reciting of the Nightingale pledge by the graduates, and the singing of the farewell hymn, after which each graduate received a bouquet of red roses, the class flower. A reception was held for relatives and friends of the graduates after the commencement exercises, followed by a dance and supper, served to the graduates, the physicians' staff, and a few friends. At the supper, Sister Seraphin was presented with a gift from the graduates and Daniel S. Kealy, superintendent of the Hoboken school, attired in gown, cap, and mask, gave the class prophecy.

U. S. Civil Service Examinations

The U. S. Civil Service Commission announces the following open competitive examinations for the positions of: Social worker (psychiatric), salary, $2,000 a year; junior social worker, salary, $1,800 a year; and physiotherapy assistant, with entrance salary in the Public Health Service, $1,620 a year, and $1,440 a year in the Veterans' Bureau. Applications for the first two positions must be on file with the Civil Service Commission at Washington, D. C., not later than June 29, and for the last position, not later than May 7.

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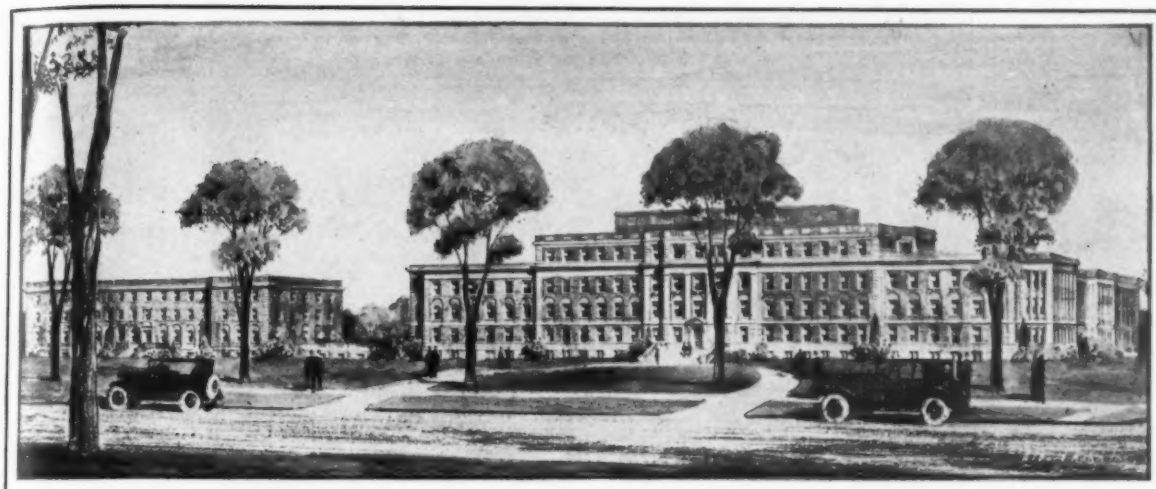

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promotes the health of its patients and the skill of its staff with

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It is highly significant, therefore, that in a goodly portion of the new hospitals being erected, "Standard" Plumbing Fixtures have been specified. And not the least important contributor to the decision was the reputation which has accrued to "Standard" by reason of the installations it has made in many of the country's older hospitals.

To be able to purchase its entire plumbing fixture equipment from one house—a concentration of responsibility—is an influencing factor with any hospital. But of even greater importance is the fact that "Standard" maintains a specially organized Hospital Fixture Department whose sole concern it is to keep abreast of hospital progress—anticipate needs and be better prepared to meet them.

Specifications of
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Refinements and improvements in Hygienic-Made Products have brought greater comfort and convenience to patients; have contributed efficient aid to the skill of surgeons, physicians and nurses; and have helped the hospital itself to operate on a more economical basis.

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HygienicMade Products are manufactured in a modern laboratory having every facility for quality production, and located in the country where every advantage of natural resources and of human invention aid in making the finest possible products.

A nation-wide service organization enables this institution to render helpful assistance in the selection of dressings material best suited to the individual requirements of each hospital's practice, and thus to effect economies in operation.

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Consult Local Telephone Directories for Addresses.

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X-Ray Equipment in the new JEWISH HOSPITAL Brooklyn, N. Y.

THIS magnificent institution, recently opened, embodies the most modern and advanced ideas in hospital design, construction and equipment. The X-Ray Department is equipped with 16 pieces of Wappler radiographic, fluoroscopic and therapeutic apparatus. Valve tube rectifier X-Ray generators are used throughout.

No higher proof of the superiority of Wappler Valve Tube X-Ray Apparatus could be desired than its selection for this great modern hospital.

Our new Booklet JB contains a vast amount of general information regarding Valve Tube X-Ray Apparatus. You ought to have a copy. Send for it today.

Stomach and Chest Room

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Show Room, 173 East 87th Street, New York City.

University-Nursing School Merger

Creighton University, Omaha, Nebr., has just announced that it has absorbed the nursing school of St. Catherine's Hospital, which is conducted by the Sisters of Mercy in Omaha. The merger, according to Rev. President Agnew, S.J., extends only to the educational work of the hospital. The same sort of union was arranged last spring, between Creighton University and St. Joseph's Hospital. The latter institution, at Omaha, is under the direction of the Sisters of the Poor of St. Francis.

Lecture Course on Medical Ethics

The Catholic Nurses' Association of Brooklyn, N. Y., is sponsoring a course of ten lectures on Medical Ethics by Rev. Francis X. Connor, C.M. of St. John's College. The first lecture was scheduled for Jan. 31. Graduate and student nurses who are interested were asked to communicate with Miss Mildred King, chairman, 9825 Franklin Ave., Queens Village.

U. S. Civil Service Examinations

The U. S. Civil Service Commission announces the following open competitive examinations for the positions of: Occupational-therapy aide (trades and industries), occupational-therapy aide (gardening), occupational-therapy aide (horticulture and floriculture) occupational-therapy pupil aide (arts and crafts), occupational-therapy pupil aide (trades and industries), and also graduate nurse, graduate nurse (visiting duty), graduate nurse (junior grade). Examinations are to fill vacancies in hospitals of the U. S. Veterans' Bureau throughout the country. Entrance salaries range from $1,800 to $2,100 a year for aides, and from $1,440 to $1,740 a year for pupil aides; higher salaried positions being filled through promotion. Applications for the above positions must be on file with the Civil Service Commission at Washington, D. C., not later than June 29.

Hospital Wing to Be Dedicated

The new wing of St. Elizabeth's Hospital, Youngstown, Ohio, is now nearing completion, and is expected to be dedicated soon. Several donors are contributing to the furnishing of rooms and wards.

(Concluded from Page 38a)

Nurses Meet at Green Bay

The regular meeting of the ninth district of the Wisconsin State Nurses' Association was held at Green Bay, Wis., Jan. 16. Miss Jesse E. S. MacDonald, district president and Marinette county health nurse presided at the meeting. Miss Jeanette Hayes of Milwaukee was the main speaker of the day.

Six Nurses Graduated

A class of six senior nurses of St. Mary's School of Nursing, Watertown, Wis., received their diplomas on Jan. 5, at a brief program to which relatives and a few friends of the graduates were invited.

Graduation at Providence Hospital, Oakland, Calif.

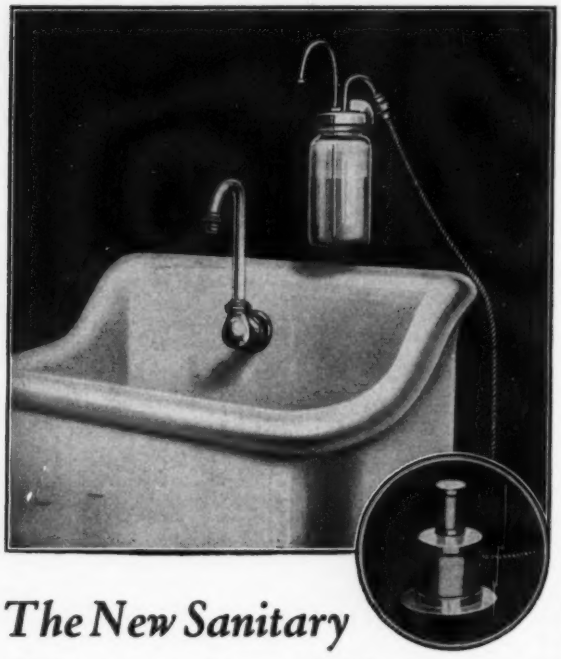
Graduation exercises were held for 20 nurses in the chapel of Providence Hospital, Oakland, Calif., on Sunday, Jan. 13. Most Rev. Edward J. Hanna, D.D., archbishop of San Francisco presided and gave Benediction of the Blessed Sacrament at the conclusion and then blessed the new clinic of Providence Hospital.

Nurses Win Professional Honors

Miss Esther Tinsley, superintendent of Pittston Hospital, Pittston, Pa., has been elected to the presidency of the Graduate Nurses' Association of Pennsylvania, and Miss May Kennedy, director of the Illinois State School of Psychiatric Nursing, has been elected president of the Illinois State Association of Graduate Nurses, both offices being the highest professional offices in their respective states. Both nurses are members of the International Catholic Guild of Nurses.

Dietetic Association Has Lectures

The Massachusetts Dietetic Association announces the following lectures at the Women's Republican Club, 46 Beacon St., Boston: Feb. 15, 7:45 p. m., Food Characteristics (Near East, Far East, Slavic, Nordic); March 8, 7:45 p. m., Control of Bacterial Flora by Diet by Dr. H. L. Higgins of the Massachusetts General Hospital; Apr. 12, 7:45 p. m.,Diet in Poliomyelitis by Dr. Frederick De Lue; May 10, 7:45 p. m., Annual Business Meeting.



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They are licensed without cost to users of Septisol Surgical Soap—the quick lathering—antiseptic soap for surgeons.

Septisol Surgical Soap is scientifically prepared and a highly concentrated product. One gallon can be diluted with two to four gallons of water making it economical to use.

The dispenser is easily attached to any wall and the flexible metal tube permits the foot plunger to be moved as desired. No interference to cleaning or mopping.

The glass container holds a quart of soap and is handy to fill. One slight pressure of the foot gives the correct amount of soap, no part need be touched with the hands. It is simple but positive in operation—pneumatic pressure does the work.

This new soap dispensing device protects the surgeon against possibility of infection.

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VESTAL CHEMICAL CO., St. Louis, Mo.
Please send full details of the "Septisol" offer.

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DR. OLIVER KAMM RECEIVES PRIZE

For his work in an investigation of the ductless glands and particularly in his isolation of pituitary hormones, Dr. Oliver Kamm, director of chemical research of Parke, Davis, and Company, manufacturing chemists, has been awarded the $1,000 prize by the American Association for the Advancement of Science for the "most noteworthy contribution to science presented at the annual meeting." Some 2,000 scientists delivered addresses at this meeting, which was held in New York. The award was announced on January 2 by Dr. Henry Fairfield Osborn, president of the Association.

The isolation of two hormones from the posterior lobe of the pituitary gland, as revealed by Dr. Kamm, is held by chemical scientists to be equal in importance to the isolation of insulin and the discovery of adrenalin. Dr. Kamm isolated the alpha and beta hormones of the posterior pituitary after twelve years' work in the Parke-Davis research laboratories. This, incidentally, is the first time that anyone has demonstrated that one gland might contain more than one hormone.

The alpha hormone is the so-called oxytocic principle. The beta hormone is the blood-pressure-raising principle. Dr. Kamm also showed definitely that the beta hormone has the power of controlling the excessive output of water. His paper before the American Association for the Advancement of Science showed that it has been a mistake to refer to the so-called "renal activity" of pituitary extracts. The beta hormone does not act upon the kidneys, but controls the utilization of water by the individual tissues of the body.

The usefulness of this beta hormone is now under investigation in diseases characterized by excessive loss of water, such as diabetes insipidus, burns, cholera, other infectious diseases, and surgical shock.

Dr. Kamm points out in his prize-winning paper that much depends upon the ability of the body tissues to retain and utilize water. He said:

"The dangerous symptoms following surgical anesthesia are due mainly to the dehydration of tissues, and the use of beta hormone prevents such desiccation. Following extensive body burns, it has been thought that death results from the absorption of toxins. According to the newer view, however, it may be the result of the desiccation of the body tissues. In such cases, if this were proved true, the use of a drug like the beta hormone might possibly save life by favoring the retention of water in the tissues. It is conceivable that something quite startling might flow from this idea in cases of serious burns.

"Water-intoxication, with its alarming symptoms leading even to unconsciousness, is very rare. The other extreme, that of water-poverty, is rather more common, and is characterized by extreme thirst and excessive elimination of water. This condition, known clinically as diabetes insipidus, is relieved at least temporarily by pituitary extract, and it has been found that the beta hormone possesses this remarkable action.

"Although other factors are also involved, it appears that proper hydration is needed for the growth of tissues. In this respect, few of us are absolutely normal. We find that some individuals are extremely sensitive to the action of the beta hormone—they are the 'physiological wets'; while others readily return to normal after administration of the hormone—they are the 'physiological drys.'

"It has just been observed that the fleshy type of individual is almost invariably of the wet type, whereas the slender, scrawny person is usually a dry. The suggestion is therefore made that we have here possibly one of the important explanations as to why the former is fleshy and why the latter fails to gain weight readily in spite of an excessive intake of food and water. It is apparent that the portly person who is desirous of reducing must cut down on his liquid intake, as well as on his intake of solid food. As for the scrawny person, gland therapy may possibly be indicated, but here the work still is in the investigative stage and conclusions cannot be drawn.

"Only a very few grams of highly purified alpha and beta hormones are as yet available. Commercially they are known as pitocin and pitressin, respectively. Although the Parke-Davis research laboratories use the methods of microanalysis, a single laboratory experiment requires the pituitary glands of 50,000 cattle."

In prefacing his address, Dr. Kamm told the American Association for the Advancement of Science, that:

"Man is on the threshold of a great chemical era. As the number of products derived directly from nature is decreasing, the field of synthetic possibilities is continually increasing, and as a result the possibility of producing new or related drugs will continually increase."

American Hotels Corp.

operating 25 hotels in 10 states, has VULCAN RANGES as standard equipment

Prior to the installations here illustrated American Hotels Corporation installed VULCAN *cooking equipment in:*

The Necho Allen Hotel, Pottsville, Pa.
Manager, E. Everett Martin
The Read House, Chattanooga, Tenn.
Manager, Frank Gregson
The Van Curler, Schenectady, N. Y.
Manager, Charles E. Rochester
The Hawthorne, Salem, Mass.
Manager, Carlos D. Smith
The White Swan, Uniontown, Pa.
Manager, Frank R. Lyons
The Viking, Newport, R. I.
Manager, James A. George
The Shenandoah, Martinsburg, W. Va.
Manager, C. A. Jennings
The Colonial, Gardner, Mass.
Manager, Rex L. Plumer
The Nathan Hale, Willimantic, Conn.
Manager, Charles E. Mayo
and two hotels to open in 1929

ABOVE—*Hendrik Hudson Hotel, Troy, N. Y.; Manager, Lewis O. Tirrell; Architect, Clarence L. Harding; Vulcan equipment installed by New York French Range Company ...includes Vulcan Hot Top Ranges, attachments, and Vulcan Broiler.*

BELOW—*Baron Steuben Hotel, Corning, New York; Newest of the American Hotel chain, opened in 1928. Manager, Francis W. Parke; Vulcan cooking equipment installed by New York French Range Co. ...includes Vulcan Hot Top Ranges, attachments, and Vulcan Broiler.*

BELOW—*Governor Clinton Hotel, Kingston, N. Y.; Manager, R. R. Gross; Architect, J. G. White Engineering Corporation; Vulcan equipment installed by L. Barth & Company, includes Vulcan Ranges and Broilers.*

ABOVE—*Anthony Wayne Hotel, Hamilton, Ohio; Manager, George H. Wartman; Vulcan equipment installed by Nathan Straus and Sons ... includes Vulcan Hot Top Ranges, attachments, Vulcan Broiler, etc.*

BELOW—*Castleton Hotel, New Castle, Pa.; Manager, John L. Slack; Vulcan equipment installed by Equitable Gas Company, through W. G. Chew Company, Pittsburgh. ...includes Vulcan Hot Top and Open Top Ranges, attachments, Hot Plates, Broiler.*

When a successful organization, as a result of satisfactory operating experience, continues to install Vulcan after Vulcan, in hotel after hotel, isn't it worth *your* while to send for the Vulcan book on cooking equipment?

Hotel Dept., Standard Gas Equipment Corp., 18 East 41st Street, New York. *Pacific Coast Distributor: Northwest Gas & Electric Equipment Co., Portland, San Francisco, Los Angeles* . . . Makers of Smoothtop Gas Ranges, Oriole, Acorn and Vulcan Ranges

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St. Luke's Hospital
Jewish Hospital
Royal Victoria Hospital
Walter Reid Hospital
Johns Hopkins Hospital

VULCAN
GAS HOT TOP RANGES

74 YEARS OF EXPERIENCE
ARE BEHIND CRANE VALVES AND FITTINGS
FOR BUILDINGS

CRANE

MANUFACTURING PRECISION
MAKES THEM EASY AND ECONOMICAL
FOR YOU TO INSTALL

Hospital Brevities

Clinic Opened at Providence Hospital, Oakland, Calif.

At the conclusion of the nurses' graduating exercises, Jan. 13, at Providence Hospital, Oakland, Calif., Most Rev. Edward J. Hanna, D.D., archbishop of San Francisco, blessed the new clinic department of the hospital, entering each of the fourteen rooms. At a dinner given in his honor, the archbishop took the opportunity of laying before the clergy present the urgent need of a clinic and heartily indorsed this latest venture of the Sisters of Charity of Providence.

The rooms for the outpatient clinic, specially designed for that purpose when the new hospital was built, were opened for the first time, Jan. 25, as a clinic for deserving patients in Alameda county, children up to the age of 12, and a prenatal maternity department.

The new clinic will be divided into several special departments: Children's medicine (pediatric) under Dr. W. L. Channel; bone and joint diseases under Dr. N. A. Cary; skin diseases under Dr. H. J. Templeton; eye, ear, nose, throat department under Dr. Frank Baxter; surgery under Dr. J. R. Fearn; maternity under Dr. Clarence A. De Puy. A number of physicians and specialists have volunteered their services.

Ample laboratory facilities are provided for all special work, such as X-ray, physical therapy, and clinical laboratory. A social worker will make home investigations and recommend cases to be treated. The alumnae association of the graduate nurses of Providence Hospital will assist the Sisters in charge. The clinic will be held during the morning hours beginning at 8:30 on Tuesdays and Fridays.

A Modern Tuberculosis Hospital

Laval Hospital, Quebec, Can., established in 1917 with a capacity of 125 beds which cares for tuberculosis patients exclusively was so overcrowded that it was necessary to erect a new 125-bed unit to the institution in 1924, increasing the capacity to 250 beds, and now after four years, the two buildings are not yet sufficient and the institution is planning the erection of another unit for 1929, at a cost of $250,000.

The hospital is located away from the noise and dirt of the city but within convenient distance for visitors. The hospital is incorporated, the property income and management is under the control of a board of directors, composed of prominent business men of the city. The Sisters of Charity of Quebec are in charge, and since 1917, 3,325 patients have been admitted.

Hotel Dieu New Wing Opened

Hotel Dieu Hospital, Cornwall, Ont., Can., recently opened the new three-story addition erected to the institution. The present hospital had been overcrowded for some time, but with the new addition, accommodations will be increased to 100 beds.

The new wing is of brick and steel construction, three stories high, of modern architecture.

The basement contains a large hall and a dining room for probationers in the nursing class.

A feature of the main floor is the beautiful chapel, which provides seating accommodations for 100 persons. On this floor, there are three private wards, with adjoining baths, and quarters for the chaplain, which include a large sitting room, bedroom, and bath.

The second floor provides light hospital wards, and a Sister's duty station.

On the third floor are eight wards, baby's bathroom, sterilizing rooms, an anesthetic room, and a doctor's scrub-up room. All floors throughout the building are of terrazzo. Including equipment and furnishings, the cost of the new unit was approximately $100,000.

Steel furniture of walnut finish is used throughout the building.

The hospital is conducted by the Religious Hospitallers of St. Joseph of which there are 26 Sisters at the institution now. A school of nursing is to be opened soon and a frame building adjoining the hospital property has been

(Continued on Page 46a)

[MARSHALL FIELD AND COMPANY, CHICAGO. *Corridor floor of Stedman Tile laid in 1926. Dark red, gold, cream, and green are used with black in a way that maintains the original color richness and dignity under continuous foot traffic.*]

PLEASE examine these three tiles. The color tones appear to float one above another, giving a sense of depth, perspective—a three-dimension color value that makes each tile a revelation.

We have just issued a new catalog, with panels in full color. This book reveals the secret of Stedman Tile quality, in appearance and resistance to wear. May we send you a copy?

Each tile reveals new beauty~

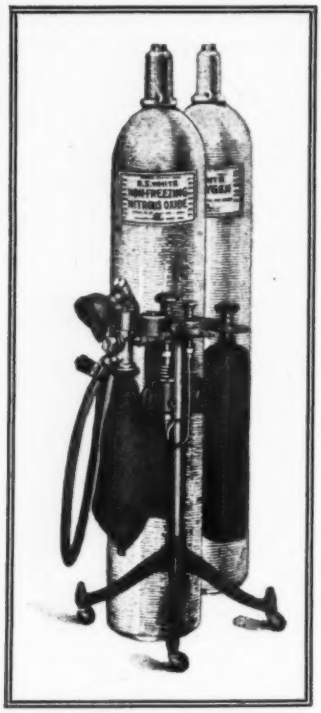
A natural intermingling of harmonious color grain *that cannot be imitated*—this is Stedman Rubber Tile. Its distinctive beauty is due to our filament reinforcement, in which millions of short cotton fibre, each practically invisible, control the interflow of the colored compounds, resulting in a depth, richness and refinement of color grain that has made Stedman Rubber Tile the truly Modern Floor.

Modern also in its ability to grow old gracefully. Stedman Tile actually improves with use.

Turn to the rubber tile floor for beauty, foot comfort, and durability—to Stedman Rubber Tile for the ultimate in all of these qualities.

STEDMAN RUBBER TILE

Invisible Fibre Reinforcement gives lasting Wear and Beauty



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Non-Freezing Nitrous Oxid and Oxygen

Pure gases, developed solely for human inhalation; they conserve patient vitality and are of inestimable value in pleural, renal and cardiac risks.

Non-Freezing Nitrous Oxid is made by the classical process, — heating ammonium nitrate and purifying the resultant gas. This purification eradicates the higher (injurious) oxids of nitrogen and the last traces of ammonia, ammonium compounds, and it eliminates moisture, the potent cause of freezing.

S. S. White Oxygen is produced by a superior method; the electrolytic decomposition of water. Its purity insures reliability.

With Non-Freezing N_2O & O a greater relaxation is possible and disagreeable post-operative effects lessened, because the patient does not become intermittently rigid, due to fluctuating gas ratios caused by the freezing.

Insist upon pure gases

THE S. S. WHITE DENTAL MFG. CO.
PHILADELPHIA

NEW YORK BOSTON CHICAGO ATLANTA
SAN FRANCISCO TORONTO
OAKLAND MINNEAPOLIS ST. PAUL DULUTH

(Continued from Page 44a)

purchased and will be entirely renovated for use as a nurses' home.

Linen Shower for Hospital

The ladies' auxiliary of Columbus Hospital, Philadelphia, Pa., will hold a linen shower for the institution this year in place of the usual annual ball. Donations of bed linens, towels, wash cloths, soap, etc., have been asked for by the committee in charge. The hospital is in charge of the Missionary Sisters of the Sacred Heart. The hospital will be open for visitors on Feb. 10.

Holds Public Reception

St. Joseph of Nazareth Hospital, Clayton, N. Mex., recently held a reception for the purpose of allowing the public to inspect the new addition to the institution and the original hospital building, which has been entirely remodeled. Members of the ladies' auxiliary conducted the visitors through the building. The new addition which is of cream stucco contains 20 rooms for patients, operating and sterilizing rooms, sunrooms, several bathrooms, office, nursery, chaplain's quarters, and diet kitchen. The Sisters' and nurses' quarters are also located in the new addition, with beautiful sunrooms for each. There is also a beautiful chapel. Kitchens, laundry, storage, and furnace rooms are in the basement. The ladies' auxiliary served tea to the visitors in one of the spacious sunrooms. A shower will be given by the auxiliary soon, for the benefit of the hospital.

Hospital Association Meets

The winter round-table conference of The New Jersey Hospital Association met on Feb. 1, at the Newark Beth Israel Hospital, Newark, N. J. From 10:30 a.m. to 12:00 noon the hospital was open for inspection and luncheon was served at noon. The round-table discussion was held at 1 p.m. and included the following subjects discussed by several prominent doctors and nurses: Fifth Year of Medical Education, Centralized School of Nursing, Psychopathic Service in General Hospitals, Affiliation of Nursing Service in Psychopathic Hospitals.

Hospital Plans Changed

Plans and specifications for the new Mercy Hospital, Monroe, Mich., to be erected soon, have been changed somewhat and the institution when equipped will cost nearly $300,000 instead of about $240,000. The Sisters will handle the extra financial burden it has been reported. The building contract will be awarded soon.

New Home for Incurables

Recently the opening of a home for incurables was announced by the Catholic Women's Union at St. Louis, Mo. The Sisters of the Poor of St. Francis conduct the institution, which occupies eight acres, purchased last summer for $60,000. The hospital building has a capacity of eighteen beds, six of which are free. This is the first and only one of this type of institution maintained under Catholic auspices in the archdiocese of St. Louis; it is nonsectarian and cares for both male and female incurable patients. More beds will be installed when those already provided are put to use.

Hospital Has Record Number of Calls

A record number of ambulance calls in one day is reported by the Mary Immaculate Hospital of Jamaica, L. I., N. Y. On Saturday, Jan. 5, 20 calls were made, which is a greater number than on any other day in the 25-year history of the hospital. The hospital has just purchased a new ambulance at a cost of $4,500. This places three ambulances in commission. The management is endeavoring to create a special fund for this new equipment and is calling upon the residents to make donations so that the new ambulance may be paid for.

Hospital Installs Electrocardiograph

An electrocardiograph, an electric machine for diagnosing heart ailments, has recently been installed at St. Elizabeth's Hospital, Danville, Ill.

Hospital Overcrowded

St. Joseph's Hospital, Alton, Ill., due to the influenza and pneumonia epidemic in addition to several operative and maternity cases, is at the time of this writing crowded to its utmost capacity. Every bed and ward is filled, and even reception rooms and halls are being used for patients. Three student nurses who are ill were removed to the dorminotry and also one patient, due to the lack of space.

Report of St. Mary's-Ringling Hospital

St. Mary's-Ringling Hospital, Baraboo, Wis., opened six years ago, issue the following report for the year 1928:

Patients admitted, 584; patients discharged, 573; deaths, 28; patients remaining in hospital, Dec., 1928, 11; patients receiving treatment but not assigned beds at hospital, 100; operations during year, 245; births, 78; laboratory examinations, 351; X-ray examinations, 246; charity patients, 42; part-pay patients, 171.

(Concluded on Page 49a)

METAL-VITRIX IN MAYO CLINIC—

A METAL Vitrix Glass Enameled Laundry Chute in the Mayo Clinic Building (shown here) will carry soiled linen safely and quickly from any one of the 19 floors to the basement laundry.

Time and labor will be saved. Clothes will be ***safe*** because METAL-VITRIX Chutes are welded (no rivets!) and glass enameled ***on inside and outside.*** For further information write

Metal-Vitrix Company
35 South Dearborn Street,
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The Mayo Clinic, Rochester, Minnesota. Ellerbe and Company, Architects

Fundamental value in hospital cooking . . .

The rapidly increasing use of electricity for institutional cooking is founded on certain advantages which have a fundamental value in hospital operation.

Electricity is clean. **Electricity produces heat without gases, fumes, ashes, dirt or soot.**

It saves space: **Electric cooking equipment is compact in design. It can be placed in the most advantageous position without regard to fuel lines or flues.**

It saves labor: **Automatic control frees the operator from constant watching and regulation. Equipment is easier to keep clean.**

It is safe: **The dangers of fire and explosion are practically eliminated where electric cooking is employed.**

Westinghouse will give you not only the facts about electric cooking equipment, but real assistance in kitchen planning. Write for information about Westinghouse ranges, bake ovens, meat roasting ovens, broilers, steam tables and short order equipment.

These hospitals have recently installed Westinghouse Cooking Equipment:
New Lisbon Hospital for Feeble-Minded Males, New Lisbon, N. J. Jewish Hospital, Philadelphia, Pa.
Bloomsburg Hospital, Bloomsburg, Pa. Hahnemann Hospital, Philadelphia, Pa.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
COMMERCIAL COOKING SECTION, MANSFIELD WORKS, MANSFIELD, OHIO

Westinghouse

The Burdick Precision Mercury Arc Lamp is indicated in Rhinitis, Coryza Tonsilitis

Even the most obstinate cases generally yield promptly to irradiation of the nose and throat with the high intensity of the germicidal Ultra-violet wave lengths delivered by the Burdick Water-cooled Mercury Arc Lamp.

The rays are applied directly to the walls of the throat through quartz applicators in contact. Fifteen seconds is sufficient exposure for any one area with the instrument. In intranasal treatments exposures of one minute may be given as the membranes have a high resistance to Ultra-violet light. The nasal passages will clear up quickly, giving a temporary relief and after the second treatment rapid improvement is usually observed. Few cases will require more than two or three treatments. General systemic irradiations of large areas of the body with the Burdick Air-cooled Mercury Arc prove of marked assistance by improving the natural powers of resistance and ridding the blood stream of its toxic content.

Receptor Model of the Faucet Type

Here is a compact and economical Mercury Arc Lamp with a casing which derives its cooling stream of water from any cold water faucet. It is designed for brief, intensive applications of the short, germicidal Ultra-violet wave lengths. The special Burdick D-shaped casing is especially convenient in orificial work.

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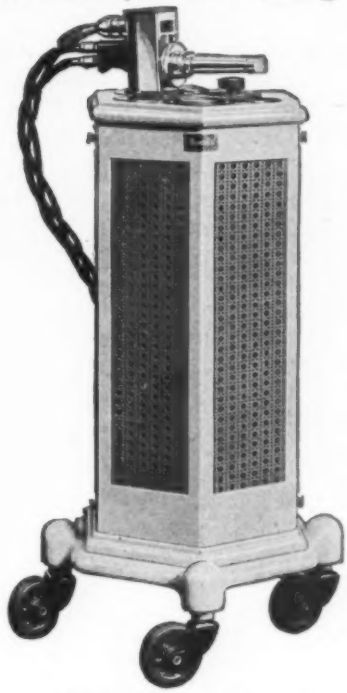

LW-530 for Alternating Current
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Please send me your new booklet illustrating the latest Burdick Water-Cooled Units.

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(Concluded from Page 46a)

Schools Assist in War on Diphtheria

The parochial schools of the diocese of Buffalo, N. Y., are cooperating with the diphtheria-control campaign launched by Rev. Sm. H. Meegan, diocesan director of the St. Vincent de Paul Society, by having all parochial school children immunized with toxin-antitoxin.

Hospital Presents Annual Report

The 23rd annual report of St. Mary's Hospital, Jefferson City, Mo., was recently issued for the year 1928 by the Sisters of St. Mary as follows: Number of patients, 1,185; surgical operations, 692; total number of hospital days, 12,190; number of free hospital days, 2,800; full-pay patients, 940; party-pay patients, 70; free patients, 175; X-ray treatments, 267; laboratory, 286; Kiwanis free children's clinic, since opening, Oct. 3, 40 children were treated and cared for.

Aid Society Ends Successful Year

The annual business meeting of St. John's Hospital Aid Society, Lexington, Ky., was held at the hospital Jan. 8. Reports showed the year 1928 to have been one of the most successful in the history of the organization, which has for its object the furnishing of material, and sewing of articles for use in the operating rooms, private rooms, and wards. Dues collected during the past year not only furnished material for the making of 3,733 articles, but left a balance of $498 which was turned over to Sister M. Albert, superior of the hospital, for the use of the institution.

Chaplain Dies

Rev. Michael Pulch, 54, chaplain of St. Mary's Hospital, Rhinelander, Wis., died recently following a long period of ill health. Bishop Theodore Reverman of the Superior diocese, assisted by priests from various parts of upper Wisconsin, officiated at the funeral. Father Pulch was well known among the Catholic clergy of Superior, having been pastor at churches at Turtle Lake, Mellen, and Rib Lake. Father Pulch leaves but one survivor, his sister, Sister Mary Pulcheria at the Holy Angel Orphan Home in Chicago. His parents died years ago in Germany, where Father Pulch was born. He came to America about 35 years ago, and was ordained in 1919.

Bequest to Hospital

St. Joseph's Hospital, Syracuse, N. Y., has received $2,000 by the will of the late Thomas P. Murray, banker of Liverpool, N. Y., and will receive a further share after the death of two cousins of the deceased.

Fire Costs Nun's Life

In an attempt to halt the spread of flames which threatened the lives of 37 patients in the central building of Sacred Heart Hospital, Hull, Queb., Can., on Christmas day Sister Cecile, 22, lost her life. The patients many of whom were mothers with young children were carried to safety. The fire was discovered in a laundry chute by one of the Sisters returning from midnight Mass. Sister Cecile seized a fire extinguisher and opened the door of the chute attempted to extinguish the flames. She was fatally burned. Sister Cecile was Miss M. Crevier of Carterville, Quebec. Most of the patients were taken to the Water Street Hospital at Ottawa. Damage to the building was estimated at $75,000.

Sister Aloysia Dies

Sister Aloysia of Charity Hospital, New Orleans, La., recently passed away after faithfully serving with the Order of the Sisters of Charity for 51 years. For 50 years she was night superintendent of nurses at the hospital, where she was beloved by the nurses, as well as by numerous friends of the hospital. During the yellow-fever epidemic of 1878, Sister Aloysia worked for days without sleep or rest, and she also rendered nursing service during the Spanish-American war. During her spare hours from her work at the hospital she distributed food and clothing among the poor of the city. The funeral services were held at St. Joseph's Church which was filled to overflowing with friends of the deceased, among whom were several eminent physicians she had worked with when they were interns at the hospital. Sister Aloysia was stricken with pneumonia on Christmas night. She was formerly Mary Callahan, born in Ireland, Jan. 5, 1855. She came to America with her parents when she was still a child, and settled in Philadelphia. At the age of 21, she entered the Order of the Sisters of Charity and came to New Orleans the following year. On May 31, 1927, she celebrated her golden jubilee.

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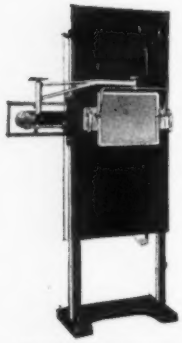
Keleket Diathermy with Resogap Control



Vertical Fluoroscope

Film Viewing Cabinets mounted on filing cabinets

IT has stood the test. For more than a quarter of a century it has kept pace with the rapid strides of the medical profession.

The reason for this success is three-fold: A consuming desire to aid in the promotion of health and the extension of life; craftsmanship on the part of men who have a reverence for accuracy and precision; and the use of the best materials in the construction of X-ray apparatus.

Every piece of Keleket apparatus, major or minor, is subjected to the most rigid tests. Only those that prove by actual practice to be a definite contribution to the profession are ever placed on the market. Here are some of them:

Deep Therapy Apparatus	Diathermy Equipment
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Combination X-ray Units	Infra Red
Accessories	Wave Generators
Everything for the Roentgenologist	Everything for the Physiotherapist

A critical examination of these will reveal that they are true to the ideals and ambitions of your profession. Successful physicians consider them silent partners in their greatest triumphs.

There is a Keleket representative in your territory

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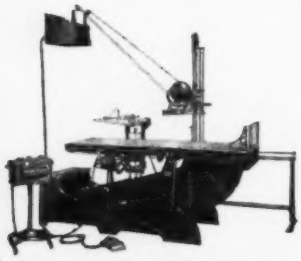

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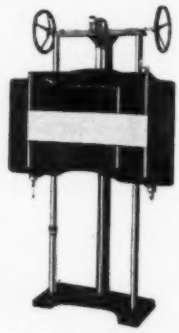

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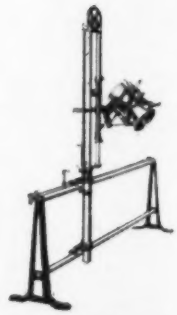

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No particles, scale, or rough spots on the inside of tank. Neither do they warp.

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Zobec Dressing Rolls make softer, firmer and more absorbent wound dressings, hand sponges, and wipes than plain gauze.

Many hospitals already use Zobec Gauze in Rolls and *save 30 cents per 100 yards* from the price they would pay for the same quantity of gauze.

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Another Ready-To-Use Dressing of

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CREATING confidence in a product is often a slow and difficult process and cannot be accomplished unless such product has distinct merit.

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Donations for Research

The University of Chicago has received a gift of $250,000 from an anonymous donor to establish the Charles Henry Markham Fund in honor of the chairman of the Illinois Central Railroad. The fund will support teaching, research, and clinical activities of the department of medicine and surgery, including the medical and surgical care and hospitalization of patients in these departments.

Mead, Johnson, and Company of Evansville, Ind., have provided the sum of $3,900, together with the necessary amount of ergosterol, for certain studies in physiological chemistry under the direction of Professor F. C. Koch. The Evaporated Milk Association has renewed its previous grant providing $2,000 for a fellowship in the department of home economics and for the expenses of a research project with reference to the nutritive value of evaporated milk.

Seattle to Have Medical Center

In the summer of 1927 the King County Medical Society invited Dr. R. G. Brodrick of San Francisco to conduct a survey of the public hospitals of Seattle and King county, Washington. In the course of this survey, Dr. Brodrick unearthed the dreadful lack of hospital accommodations there, with the resultant recent consummation of the plan of the County of King and the City of Seattle to invest jointly upwards of three million dollars in new hospital buildings.

Upon the advice of his local physician, Dr. Brodrick asked to be excused because of poor health from participation in the planning of this undertaking, so the county commissioner and the local medical society decided to seek the services of Dr. William H. Walsh of Chicago. Dr. Walsh was asked to come to Seattle to look over the situation there and to confer with the principals, and upon being convinced that Dr. Brodrick could not serve in the capacity of consultant because of ill health, Dr. Walsh agreed to act as consultant in the planning and equipping of this new three-million-dollar building project.

Work on this project is to be started within thirty days, and one of the first tasks confronting Dr. Walsh is the selection of a suitable site for the new buildings, taking into consideration present requirements and sufficient area for future expansion. For this purpose Dr. Walsh expects to return to Seattle the first week in February.

On the site selected there will be started the nucleus of a great medical center whose facilities and scope of activities will be unexcelled on the Pacific Coast. The $2,750,000 bond issue authorized at the last election will cover the cost of this first unit.

The architects selected by the county commissioners to work with Dr. Walsh on this project are the well and favorably known Seattle firm of Thomas, Granger and Thomas, who have planned and built many public structures throughout the Northwest, and at Denver, Colorado, the Sisters of Mercy Hospital is one of their outstanding works.

President, Postgraduate Medical School, Retires

Dr. James F. McKernon, president of the New York Postgraduate Medical School, who has contributed to the education of a group of practitioners totaling nearly one sixth of the practicing physicians of the United States, was honored recently at a dinner given at the Biltmore Hotel, the occasion marking his retirement as president. He will now occupy the newly created position of honorary president of the Postgraduate Medical School.

Several prominent speakers including many well-known doctors paid tribute to Dr. McKernon for the fine work he has done at the medical school.

Dr. McKernon was appointed to the presidency in 1912 remaining in office until 1917 when he resigned to accompany the Postgraduate unit to France. Upon his return, he was again appointed president, which office he held up to the present time. During the past ten years of his presi-

(Continued on Page 54a)

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Wright Rubber Tile floors offer many advantages. They are attractive—easy to walk on—moisture proof—sanitary and the maintenance cost is very low. You can have almost any color required to match or contrast a general color scheme. Under any condition of service rubber tile has extremely long life, outwearing any other type of floor except perhaps marble. In the hospital or chapel the perfect quiet it affords has particular appeal. The Chicago Committee of the Investigating Committees of Architects and Engineers has given Wright Rubber Tile their full approval. Many architects specify it regularly, knowing the value of rubber tile for flooring purposes. Wright Engineers gladly cooperate in developing special layouts or designs.

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St. Anthony's Hospital, Chicago, Ill.
Municipal Hospital, Rochester, N. Y.
Stamford Hospital, Stamford, Conn.
Misericordia Hospital, Milwaukee, Wis.
St. Mary's Hospital, Duluth, Minn.
Hamilton Sanitarium, Olney, Texas.
St. John's Hospital, Anderson, Ind.
St. Joseph's Sanitarium, St. Joseph, Mo.
West Suburban Hospital, Oak Park, Ill.
St. Joseph's Hospital, Brainerd, Minn.
St. Mary's Hospital Chapel, Racine, Wis.
St. Elizabeth's Hospital, Appleton, Wis.
Wis. Memorial Hospital, Madison, Wis.
Waukesha Municipal Hospital, Waukesha, Wis.
Charity Hospital, New Orleans, La.
Children's Hospital, Milwaukee, Wis.
All Souls Hospital, Morristown, N. J.
Jersey Shore Hospital, Jersey Shore, Pa.
Martha Washington Hospital, Rogers Park, Ill.

Corridor in operating room and X-Ray department, St. Luke's Hospital.

INSTALLATIONS

St. Luke's Hospital, Chicago, Ill.
Cleveland Clinic Hospital, Cleveland, Ohio.
County Hospital, Fort Collins, Colo.
St. Joseph's Hospital, Joliet, Ill.
St. Anthony Hospital, Dodge City, Kan.
Washington Hospital, Washington, Pa.
St. John's Hospital, Tulsa, Okla.
Madison General Hospital, Madison, Wis.
Highland Sanitarium, Shreveport, La.
Mt. Sinai Hospital, Chicago, Ill.
Augustana Hospital, Chicago, Ill.
Mayo Clinic Hospital, Rochester, Minn.
St. Francis Hospital, Grand Island, Nebr.
Dr. Ashley's Clinic Hospital, Kenosha, Wis.
Methodist Hospital, Memphis, Tenn.
Dr. Jackson's Clinic Hospital, Madison, Wis.
Professional Offices, New York City.
Milwaukee Hospital, Milwaukee, Wis.
St. Joseph's Hospital, Marshfield, Wis.
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(Continued from Page 52a)

dency, the Postgraduate Hospital has cared for over 107,500 patients, and given treatment to some 2,157,553 patients in its clinics.

A Doctor, Teacher, and Builder

The January issue of the Journal of the Association of American Medical Colleges carries an interesting article concerning the late lamented Dr. Don R. Joseph, who at the time of his death was associate dean of the St. Louis University medical school. The article was written by Dr. E. P. Lyon, Dean of the medical school of the University of Minnesota, and reads as follows:

"The obituaries of Dr. Joseph have emphasized his good work as a teacher of physiology, as an investigator in that field, as an administrator (associate dean) and as a student leader. All of these excellent qualities he had and for all of them we remember him gratefully.

"But there is another very interesting and valuable power which Dr. Joseph exemplified in high degree. He understood building construction and design as he also understood the needs of medical education. He brought this rare combination to bear on the building program of St. Louis University with results which anyone who cares to

MERCY HOSPITAL, VALLEY CITY, N. DAK.

(Continued on Page 56a)

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before it reaches patients' ears

Typical corridor in the Illinois Central Hospital, Chicago, Ill. Ceiling finished in Johns-Manville Nashkote Type B. Schmidt, Gardner and Erickson—Architects

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(Continued from Page 54a)

go into the details will acknowledge to have been highly satisfactory. The two buildings erected in large part under his guidance are models of arrangement, economy, convenience, ventilation, lighting, and general adaptability. Nor was he without sense of beauty. While adhering closely to the economical program enforced by meager funds, he managed to produce laboratories, corridors, and lecture halls free from the impression of stark, blank utilitarianism common in some of the new laboratory buildings in other universities.

"I commend the medical-school buildings of St. Louis University to any institutional or laboratory head who is planning new construction. Had Dr. Joseph lived I think he would have made a distinctive place for himself as consulting expert in medical-school architecture."

Georgetown Plans New Medical School

Ground was broken for the new $600,000 medical school, which Georgetown University, Washington, D. C., is erecting as the first unit of an enlarged medical center. One of the features of the new medical center will be a nurses' home, which will be in immediate proximity to the new hospital. Within four years the Universtiy authorities expect to complete the new medical center, which will include medical and dental schools, dental infirmary, hospital, special clinics for women's and children's diseases, the chemo-medical research foundation, and the new school of nursing. Georgetown School of Nursing was organized in 1903 and has grown rapidly ever since.

Killed by Ethylene Explosion

Dr. Dalton Wilson, anesthetist at the Walker Hospital, Evansville, Ind., was instantly killed, Jan. 3, by an explosion of ethylene. Dr. Dalton was trying to repair the drum containing the gas. The explosion is said to have practically destroyed part of the building and to have injured an assistant. It is supposed to have been due to a spark caused by friction against the metal drum.

For Study of Cancer

Mr. Francis P. Garvan, head of the Chemical Foundation, has given to Johns Hopkins University, Baltimore, Md., $60,000 to enlarge the laboratory of Dr. Jos. C. Bloodgood for cancer study and research. Of this fund, $10,000 is for enlarging the laboratory and $10,000 a year for the next five years to support research. Dr. Bloodgood, who is said to have spent much of his own money on the laboratory, said that the funds will be used for the study of human cancer, particularly in reference to the use of dyes and stains in its early diagnosis and treatment. The research work on differential staining of frozen sections of fresh tissue will educate surgical pathologists, of whom there is an insufficient number.

Physician, Friend of Poor, Dead

Dr. Charles C. Mohun, for over 40 years on the staff of St. Mary's hospital, San Francisco, Calif., died on Jan. 1, from an attack of influenze, which weakened his heart. The funeral was held from St. Edward's Church on Jan. 3, with Rev. Wm. J. Butler celebrating the requiem Mass. At the doctor's request, the last rites were of the simplest kind. Most Rev. Archbishop Edward F. Hanna spoke a few words in praise of the doctor's remarkable devotion to science and Christian charity. The many poor whom the doctor aided so generously and men high in professional life, former patients of his, attended the Mass to pay him last tribute. Dr. Mohun, a graduate of St. Ignatius College, had been connected with St. Mary's Hospital, since 1884, when he started a period of four years' residence at the institution. He was noted as a specialist in diseases of women and children, and had for many years been chairman of the children's board of the hospital.

New Medical Dean

Rear Admiral Charles H. F. Lowndes, U.S.N., has been appointed dean of the Georgetown University Medical School and superintendent of Georgetown Hospital at Washington, D. C. Admiral Lowndes is commandant of the Navy medical supply depot at Brooklyn, N. Y.

Wisconsin Physician Dies

Dr. Max Staehle, 59, health officer of the city of Manitowoc, Wis., a practicing physician for nearly 29 years, and a captain of the Wisconsin National Guard, died on Jan. 8 at Holy Family Hospital after an operation for appendicitis. Dr. Staehle was a life-long resident of Manitowoc and was known throughout Wisconsin. Through his connection with the National Guard since the war he was stationed at encampments each summer. For the past eight years he served as health officer of the city.

(Continued on Page 59a)

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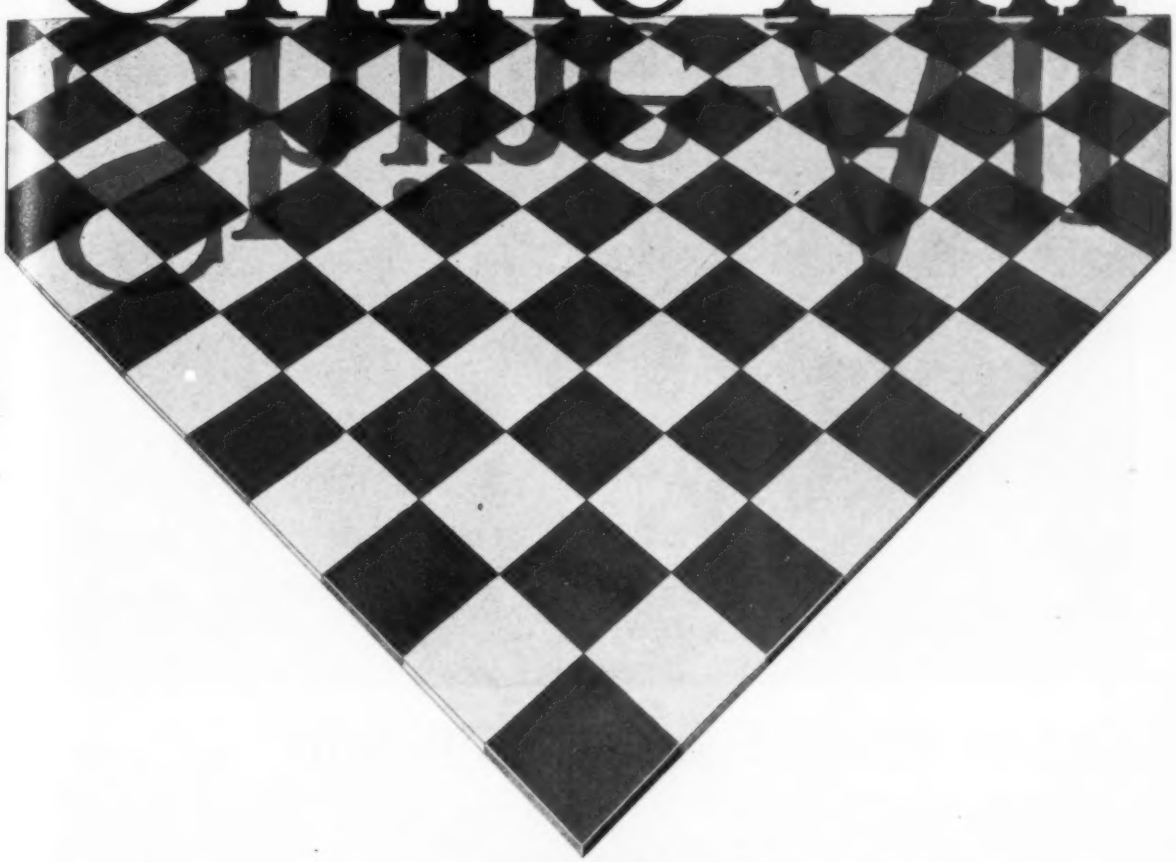

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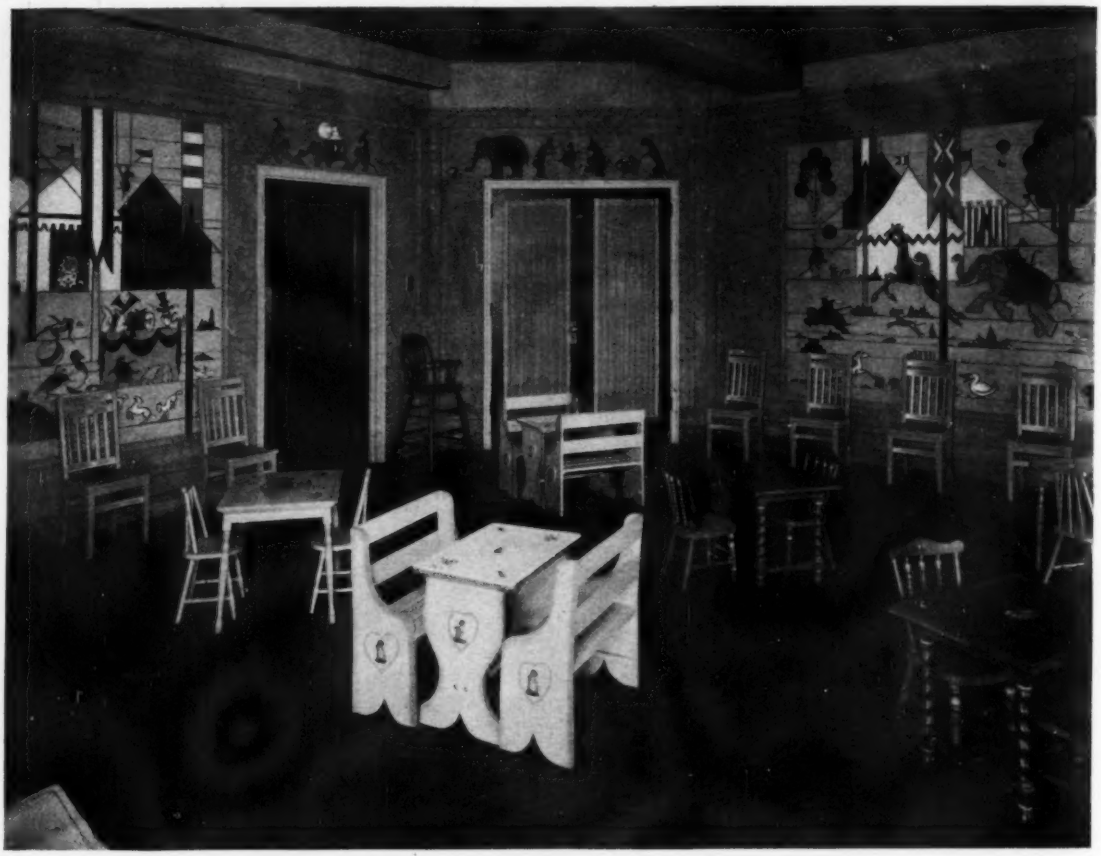

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(Continued from Page 56a)

Hospital Doctors Meet

Physicians of the Holy Family Hospital, Manitowoc, Wis., held their regular monthly meeting at the hospital on Jan. 14. Dr. Copps presented an illustrated talk on "Intracranial Pressure" at the meeting.

Dr. Goldwater Resigns

Dr. S. S. Goldwater has announced his resignation from the position of director of Mt. Sinai Hospital, New York City. He will, however, be associated with this hospital as consultant to the board of trustees. Dr. Goldwater will in the future, give his professional attention exclusively to the planning of hospitals, an occupation which has absorbed the greater part of his time since he resigned the position of health commissioner of New York City in 1915.

Dr. Joseph Goldberger Dies

Dr. Joseph Goldberger, a scientist working with the U. S. Public Health Service, died Jan. 17 at Washington, D. D., where he was engaged in a study of diets thought to cause pellagra. He was 54 years old.

Physicians are puzzled over the cause of Dr. Goldberger's death and Dr. G. W. McCoy, director of the Health Service's higienic laboratory, announced that a postmortem examination would be made. The attending physician thought that Dr. Goldberger was suffering from some form of anemia. Many of the patient's colleagues volunteered for blood transfusions, but, after six operations, this was abandoned as of no avail.

Before his fatal illness, Dr. Goldberger had suffered three other severe illnesses: typhus fever, three years ago while experimenting on that disease in Mexico City; yellow fever, shortly after, while working on that disease in New Orleans; and dengue fever while studying it in Brownsville, Tex.

Dr. Goldberger was born in Austria-Hungary and came to the U. S. when he was about seven years old. He graduated from Bellevue Hospital Medical College, New York, and entered the Public Health Service. His greatest achievement to the Service was his contribution to the world's knowledge of pellagra. His discoveries are believed to have saved thousands from succumbing to this disease. Surgeon General Cummings declared Dr. Goldberger's work to be one of the outstanding contributions to medicine. The doctor is survived by a wife, three sons, and a daughter.

STATE AID TO HOSPITALS[1]

Clement W. Hunt, Deputy Secretary, Department of Welfare, Commonwealth of Pennsylvania, Harrisburg, Pa.

The general assembly of the Commonwealth of Pennsylvania appropriated in the spring of 1927, the sum of $5,335,300 to 161 general hospitals for the two years ending May 31, 1929. The money was granted in direct appropriations to each of the several hospitals "for the medical and surgical service rendered to and maintenance of each person treated in the hospitals who is entitled to free service." By means of these appropriations, then, the state is in reality purchasing medical service of these hospitals for its wards. This is in marked contrast with the plan which prevailed for years whereby the general assembly by direct appropriations attempted to make good the deficits incurred by the hospitals.

The first essential of the Pennsylvania plan is the establishment of a social-service credit office in each state-aided hospital. For the purpose of reimbursement from its appropriation, a hospital submits a bill to the state for free service rendered to needy patients. It is important to ascertain the financial ability of each of the patients whose name appears on the bill or report of persons entitled to free service (Form 1.F.P.) because the management of the hostital must make affidavit to the effect that the report is true and correct. It must be apparent then that the financial ability of each patient admitted as a free or part-pay patient must be carefully investigated by a competent person.

A social-service credit office should be something more than a credit department such as one finds in commercial enterprises. It must be dominated by the ideals of social service. Moreover, its investigations should be conducted in that spirit of sympathetic understanding which characterizes the work of the trained social-service worker.

A record of each patient receiving free or part-pay service is kept on file against which the quarterly report of persons entitled to free service can be checked. For this purpose, the hospitals in Pennsylvania uniformly use

[1]Presented at the round-table conference, New Jersey State Hospital Association, Jersey City Hospital, Oct. 31, 1928.

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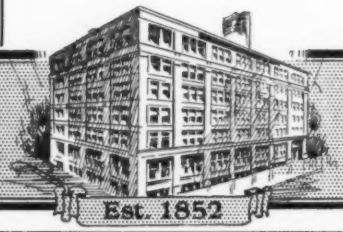
These well-known incubators, through their reliable performance, have proved, through the course of years, a superiority over other products of this character which is undisputed and which has given them the position of the standard incubator of its kind today. Several other types of incubators have appeared on the market, but have either not been able to reach the degree of accuracy that is attained in the Freas incubator, or have been so complicated that they have not been found satisfactory in practical use.

The Freas electric incubator automatically controls the heat to a constancy of 1 degree Centigrade and will maintain the temperature as long as the current is on. Due to their peculiar construction and the large amount of wire used, it is very rare that a burn-out will occur until after many years of use. The heating units are easily removable and replaceable by the operator. The walls are very heavily insulated. The incubator is made in a number of different sizes and styles.

As district distributors for the entire line of Freas products we carry a heavy assortment of different types of incubators and ovens in stock, and are prepared to make prompt shipment. Complete detailed information as to construction, method of operation, types, etc., will be cheerfully furnished upon request at any time.

Descriptive price list upon application.



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what is called Form 65, credit report. This form was developed by the department of welfare to embody all of the essential facts necessary to justify the classification of a patient as a free or part-pay case.

The number of days of free service rendered to part-pay patients is determined in the following manner. The amount received for the care of such patients is divided by the hospital ward rate to give the number of days paid for. By deducting the number of days thus paid for from the total days service to part-pay patients there remains the number of days of free treatment rendered to this class of patients.

At the close of a quarterly period the report of persons entitled to free service is prepared by each hospital showing the total number of days of free treatment rendered to free and part-pay patients. A field representative of the department of welfare then visits the hospital for the purpose of checking the report with the records of the free and part-pay patients on file in the office of the social-service credit worker.

The field representatives visiting the state-aided hospitals are women of excellent training, mature judgment, and broad experience in social-service work. As a consequence they are able to be of real help to the less experienced credit workers in the hospitals. They not only give advice on the organization and conduct of credit departments, but they are constantly giving guidance in the technique of investigating cases. Through the work of the field representatives, the department has made a distinct contribution to hospital social service in Pennsylvania.

A social-service credit office has been given as the first essential of the Pennsylvania plan of giving state aid to hospitals. The second essential is a uniform system of cost accounting. The appropriation act for each hospital carries a proviso to the effect "that no hospital shall receive compensation at a rate exceeding the actual cost of service per capita in the public ward of said hospital." The maximum rate of compensation is fixed at $3.00 per diem.

It is apparent then, that there must be some adequate reliable means of ascertaining the cost of service in the public wards of the hospitals. By reason of the fact that the department of welfare had introduced a uniform system of accounting in the state-aided hospitals in 1922, the way was clear for the inauguration of the new plan of granting state aid in June of 1923.

No attempt will be made here to describe the system of accounting. Suffice it to say that it is so designed that ward service costs can be segregated from the private and semi-private costs, as well as the cost of the outpatient department.

To arrive at the per-capita cost per diem of caring for ward patients two factors are essential: first, the total number of ward days during a given period, and, second, the total segregated costs of caring for ward patients during that period. The patient days are directly ascertainable from the records; to determine what portion of the costs of operation should be charged to ward service is a problem at all times. After much study and experimentation the department arrived at a few easily applicable bases for segregating the distinguishable items of expense. As an illustration, the cost of heat, light, and engineering service is apportioned to private and semi-private service and to ward service on the area or cubage of the rooms occupied by each class of patients.

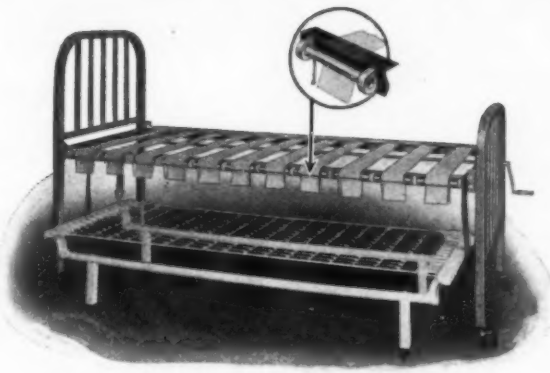
The segregation of costs and the computation of the per-diem cost per patient are made in the quarterly financial report. This report is audited by traveling auditors representing the auditor general. They visit the hospital once in three months to check the financial records and verify the reported ward costs. Such periodical audits insure uniformity in accounting; as a consequence, Pennsylvania probably has the largest group of hospitals to be found anywhere which are closely held to a uniform system of accounting.

Payments from the state treasury are based then on two reports. One is the report of free service, checked by field representatives of the department of welfare. The other is a financial report audited by traveling auditors. It would seem that this is an unnecessary duplication of service. But the feeling is that the average auditor is no more competent to judge the merits of free service in a given case than the average social-service worker is to audit a financial report and the accounts on which it is based.

The amount which a hospital receives in any quarter is computed by multiplying the number of days of free serv-

(Concluded on Page 62a)

ZIMMER FRACTURE BED



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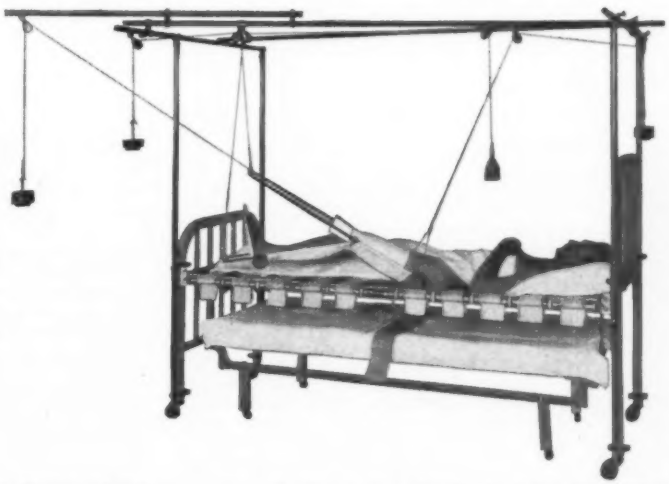
Illustrating Zimmer Overhead Frame clamped to bed and in use with Thomas Leg Splint and Pearson Attachment. NOTICE: Fracture apparatus not disturbed when trundle bed is lowered and strap dropped for use of bed pan.



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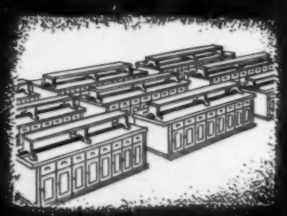

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(Concluded from Page 60a)

ice approved by the department of welfare by the per-capita cost of ward service, but not to exceed the maximum rate of $3.00 per day. However, a hospital is limited by the amount of its biennial appropriation; it usually earns in free service rendered, a sum somewhat in excess of the amount appropriated by the general assembly.

At this time in every even-numbered year the department is making preparations for the general assembly which meets in January following. As a part of the budget estimates, a statement of the estimated needs of the state-aided hospitals is prepared. Each hospital presents an application setting forth the number of days of free service approved by the department, the average cost of ward service not to exceed $3.00 per day and the resulting earnings for the past year. Consideration is also given to the possible increase in service by any hospital which is about to build an annex or new building, thereby increasing its ward capacity. This may have a direct bearing on its appropriation needs.

Using the information contained in the applications, verified from the records of the department, a statistical table is prepared. There is presented the total free days approved for the preceding biennium, the amount earned at a maximum rate of $3.00, the actual payments from the treasury department and the amount of the appropriation. The same information is presented for the first year of the current biennium with an estimate for the full two years. The actual experience of the preceding biennium, the estimates for the current two-year period, with allowance for possible increased ward service, indicate the estimated free days and earnings for the ensuing biennium.

The total estimated needs of the hospitals have been, in the past, greater than the general assembly could satisfy. Two years ago, the amount appropriated was approximately 65 per cent of the estimated earnings of the hospitals. There is a group of six large hospitals whose earning capacity is in each case greatly in excess of $150,000. To these hospitals the state has given relatively much less than to the other smaller hospitals. This policy is based on the belief that these unusually large hospitals are better able to finance their operations locally than are the smaller institutions, particularly those in the small municipalities.

The present system of granting state aid is generally satisfactory to all of the hospitals. There has been no thought or apparent desire of returning to the former plan. It is, of course, only natural that the hospitals should appeal for appropriations approximating, or even exceeding, their estimated needs. But there is no longer the complaint of political favoritism which characterized the old plan. The money which the general assembly has available for state-aided hospitals is distributed with equity.

There are two weaknesses in the present plan. In the first place, it does not give recognition to the dispensary department of a hospital. The department of welfare fully appreciates the value of the dispensary and the important service which it renders. In many instances the dispensary is the preventive agency which makes unnecessary bedside treatment. But thus far the department has arrived at no standard of service or costs to serve as a basis of reimbursing a hospital. The need is recognized; eventually a way will be found for encouraging hospitals in their dispensary work.

Again, the department has felt that it would be better to have a lump-sum appropriation made directly to the department of welfare. The present plan of making direct appropriations to the hospitals has certain advantages. But it not infrequently happens that the economic and health conditions of some community so change in a two-year period that an otherwise comfortable appropriation becomes seriously inadequate. Payments by the department from a lump-sum appropriation would permit of a more equitable distribution of state aid, making allowance for changing conditions.

But neither of these criticisms can be considered serious. They merely indicate goals toward which to work in perfecting a plan which is now working to the direct benefit of the hospitals and the communities which they serve.

Reproduction of the current magazine advertisement

You should know these facts

THE Eveready Sunshine Lamp using Eveready Sunshine Carbons produces a light equivalent to sunshine. This man-made sunshine has ultra-violet, visible and infra-red rays in the same proportions that are found in natural summer sunshine.

This light is NOT sold as therapeutic light. In our advertisements we are careful to state that the reader should under no conditions risk the dangers of self-diagnosis and that he should go to his physician on any indication of illness. We emphasize that this light should be used only to build up health.

If your patients require therapeutic light, as distinct from sunshine, YOU can instruct the removal of the glass filter in lamp and order the correct type of Eveready Therapeutic Carbon. Your patients can get these carbons on your prescription.

Regarding this careful ethical policy the Council on Physical Therapy of the American Medical Association made the following statement: "Your letter of July 2, 1928, outlining the proposed policy of National Carbon Company, Inc., was submitted to the Council for consideration. The policy therein outlined is acceptable to the Council."

NATIONAL CARBON COMPANY, INC.

***Carbon Sales Division*, Cleveland, Ohio**

Unit of Union Carbide UCC ***and Carbon Corporation***

Correct Styles For Trained Graduate and Student Nurses

Workmanship, Materials, and Service Not Excelled

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Fabric G245—English Broadcloth, $8.00 each or 3 for.....$22.50

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Fabric D30—Nurses' Uniform Cloth, $5.50 each or 3 for.....$15.00

Can be had in less expensive material.

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No. 83-25, medium weight Nurses' Cloth, each.....$3.50

In lots of three, $9.00

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In lots of three, $18.00

Style No. 80

Our Standard Student Nurse Outfit, Information on request.

Uniforms Tailored to Individual Specifications

Catalogue and Measurement Blanks Mailed on Request.

Designed and Tailored by

WASH FABRIC COMPANY

7 East Harrison Street

CHICAGO **ILLINOIS**

SURGEON GENERAL REVIEWS WORLD HEALTH CONDITIONS AND SUMMARIZES THE WORK OF HIS BUREAU IN ANNUAL REPORT

United States Public Health Service

A summary of world health conditions and of the work of the United States Public Health Service is given in the annual report of Surgeon General H. S. Cumming just submitted to Congress.

On account of the close relation between modern commerce and the public health with respect to the spread of disease, the Public Health Service keeps informed of the world prevalence of dangerous communicable diseases, and holds two most important lines of national defense against imported infections—examination of intending immigrants abroad in the country of origin and inspection of vessels, passengers, and seamen and the medical examination of alien passengers and seamen arriving at domestic and insular ports of the United States. As a result of this work, there was no importation of any quarantinable disease during the year, despite the fact that smallpox, plague, yellow fever, cholera, and typhus fever were more or less prevalent in endemic localities throughout the world.

In this work of protecting the United States from the importation of dangerous diseases, 21,631 vessels, 1,046,319 passengers, and 1,308,681 seamen were inspected at domestic and insular ports, and 1,178,482 alien passengers and 928,423 alien seamen were examined by medical officers under the immigration law. Seven cases of smallpox, one case of leprosy, and two cases of typhus fever reached the quarantine stations and were detained. Among the more important causes of certification for disease in alien passengers were trachoma, tuberculosis, feeblemindedness, insanity, and the venereal diseases, while the more important causes among alien seamen were the venereal diseases, trachoma, and tuberculosis.

The surgeon general states that health conditions were generally favorable throughout the world during the fiscal year 1928. No pandemic outbreaks of any disease occurred and no country with a modern public-health organization was affected by the spread of any of the pestilences that have scourged the world at times past. Bubonic plague continued to be pandemic, India continuing to be the world center of plague prevalence. That the disease is widespread, however, is shown by the fact that cases were reported in French Indo-China, China, Algeria, Madagascar, Nigeria, Siam, Argentina, Ecuador, South Africa, Greece, and Russia. In spite of this world-wide occurrence, there were no cases on the North American continent, excepting two in California, which were contracted from the infection in ground squirrels in that state. The Surgeon General points out that these squirrels constitute a perpetual reservoir of plague infection and advocates more extensive control measures.

Cholera was more prevalent in India than it had been during the preceding eight years, excepting 1924, and was present in several other parts of the world, principally Siam, Cochin-China, and China proper. Many Chinese ports were reported as infected during the year. An extensive epidemic of cholera also occurred in Iraq.

Yellow fever reappeared in west Africa in June, 1928, after several months' absence. Some months earlier, cases had been reported at various places in Africa, including Senegal, Togoland, Dahomey, the Gold Coast, and the Belgian Congo. An epidemic of yellow fever developed at Rio de Janeiro, Brazil, during 1928, and the disease was reported at several other ports and from places in the interior.

The typhus fever situation in Europe continued to improve, although a marked outbreak occurred in Morocco in the latter part of 1927 and early in 1928.

"Smallpox," say the Surgeon General, "continues to be unduly prevalent in spite of the fact that an efficacious method of prevention is known. The disease is reported from practically every country of the world." He points out that again the United States has the unenviable distinction of reporting more cases of smallpox during the year than any other country in the world from which reports are received, except India, and says:

"It is difficult to understand why this condition is allowed to continue year after year. A large percentage of the property in this country is insured against loss by

(Concluded on Page 70a)

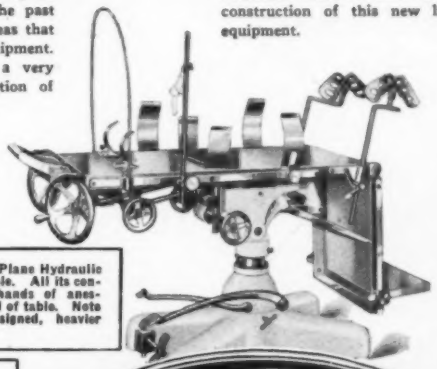
NEW BETZCO-HOSPITAL EQUIPMENT

~ With Monel Metal ~

The New "WhiteKraft" Line of Steel Hospital Equipment is the product of collaboration between eminent Hospital Consultants, experienced Hospital Executives, and our Engineering Department. Every effort has been made to make each piece of "WhiteKraft" steel furniture embody all points of advantage developed in the past and also to incorporate in it, new ideas that are exclusive with "WhiteKraft" equipment.

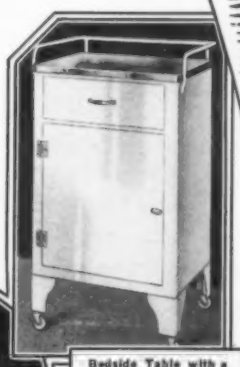
Hospital Executives have made a very gratifying response to the introduction of this New "WhiteKraft" Line. They have been impressed by the obviously progressive design of this steel furniture and its unusually strong construction. In keeping with the high quality of material which goes into "WhiteKraft" furniture, large quantities of MONEL METAL have been used in the construction of this new line of hospital equipment.

INCO MONEL METAL

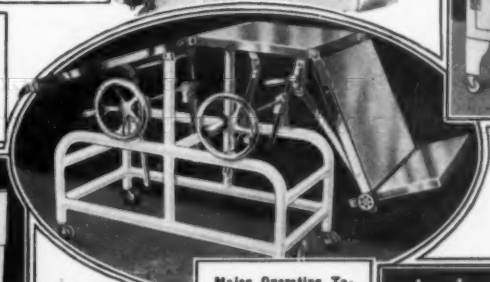


Murphy Multi-Plane Hydraulic Operating Table. All its controls are in hands of anesthetist at head of table. Note the newly designed, heavier base.

Bedside Table with Monel metal top and solution bowl. Has a large drawer for personal belongings and compartment below for two urinals and bed pan.



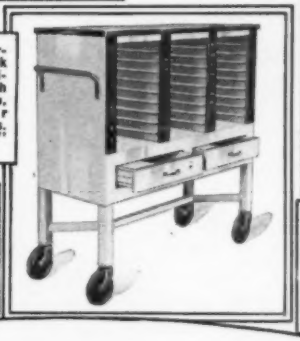
Bedside Table with a guard rail and Monel metal top. Has brackets in storage compartment below and on door for urinals and bed pans. Large drawer for patient's personal belongings.



Diet Kitchen Table with a Monel top. Has two commodious drawers, slides on each side and a large compartment for storage below. Something every hospital can use to advantage.

Major Operating Table with Monel metal top and new base frame. Adjustable to every position. Note the sturdy construction. Ideal for small hospitals.

Mobile Chart File Carriage made for the Cook County Hospital of Chicago. Equipped with MONEL METAL Top, Moulding, Number Strips, and Chart Slides. A new "WhiteKraft" product.



Combination Baby Bath and Dressing Table with Monel metal top. Entirely new in hospital field. An excellent example of "WhiteKraft" progress. Can be equipped with heaters if desired.

Another example of how "WhiteKraft" equipment keeps abreast with hospitals. This Wall Dressing Cabinet has two Monel shelves and a Monel metal top. Storage space and three large drawers below.

FRANK S. BETZ COMPANY

General Offices and Factory

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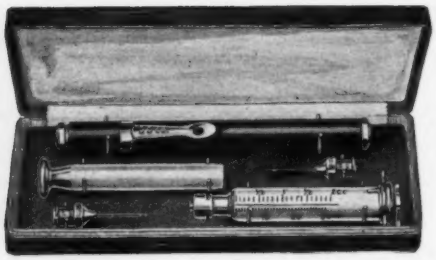
Gifts for Commencement



No. 6

Gift Combination

No. 6. Metal case decorated in blue and gold and trimmed inside with white silk and blue velvet. Contains one 60 sec. B-D Co. Thermometer, a 2 cc. Luer-Loc Syringe, two Erusto Needles. Complete...$5.00

NO gift fulfills the expectations of the giver or wins the gratitude of the receiver more than practical, personal equipment used every day in the hospital, office or home. It is a constant reminder of the thoughtfulness of a friend, and one's appreciation grows each day with its use. The quality of Becton, Dickinson and Company's products is known throughout the medical profession. If you are about to bestow a gift, write for the B-D Gift Pamphlet.

No. 4675

Nurses' Outfit

No. 4675. Black Morocco grained leather and leather lined cover flaps. Contains a Manhattan One Minute and a Bath Thermometer, metal Hypodermic Syringe and Needles, Ice Pick, Baby Scale and other items shown in illustration. Complete.....$14.50

B-D PRODUCTS

Made for the Profession

Makers of Genuine Luer Syringes,
Erusto and Yale Quality Needles,
B-D *Thermometers, Ace Bandages, Asepto Syringes,*
Armored **B-D** *Manometers, Spinal Manometers*
and Professional Leather Goods

BECTON DICKINSON & CO., Rutherford, N. J. H.P.
GENTLEMEN: Please send B-D Gift Pamphlet.

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BECTON, DICKINSON & CO., RUTHERFORD, N. J.

Patient Types . . .

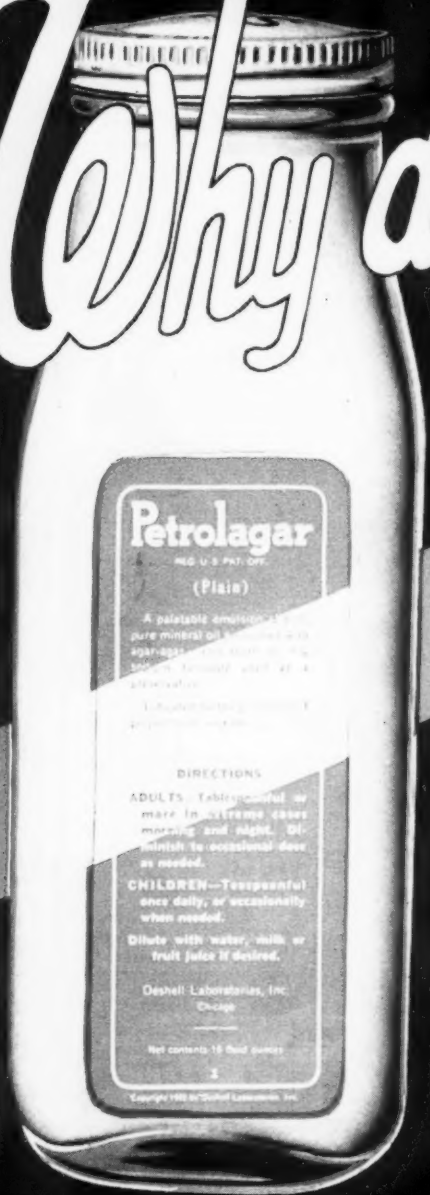
The Hospital Case

Confined to the bed, weak and nervous, the hospital patient under your care is hardly a fit subject for the old-fashioned drastic purge.

Petrolagar has many advantages in maintaining bowel function. It is palatable and does not interfere with digestion. It produces normal, soft-formed fecal consistency, providing real comfort to bowel movement.

Petrolagar

Why an emulsion



Petrolagar affords a valuable aid to diet and exercise in bringing about a restoration of normal bowel movement—the effect being purely mechanical.

Petrolagar simply acts by permeating the intestinal content to produce a soft-formed, yielding mass in the bowel.

Petrolagar has many advantages over plain mineral oil. It is more palatable; it easily mixes with bowel content with less danger of leakage and does not interfere with digestion.

Petrolagar is composed of 65% (by volume) mineral oil with the indigestible emulsifying agent, agar-agar.

Write for information about the new Hospital Dispensing Unit for hospital dispensing only

Deshell Laboratories, Inc.,
536 Lake Shore Drive,
Chicago **Dept. H. P.2**

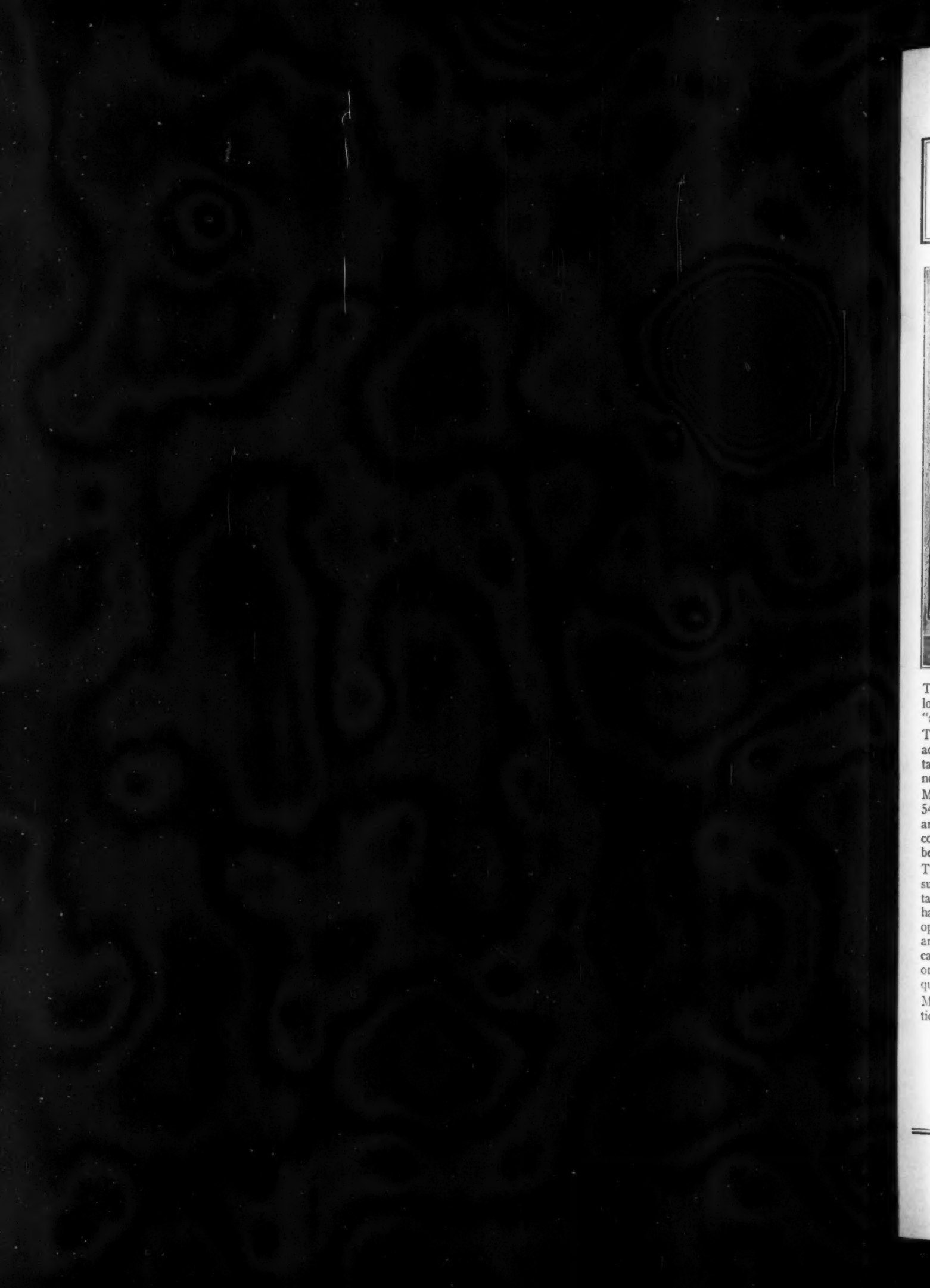
Gentlemen: — Send me copy of the new brochure "HABIT TIME" (of bowel movement) and specimens of Petrolagar.

Name.....

Address.....

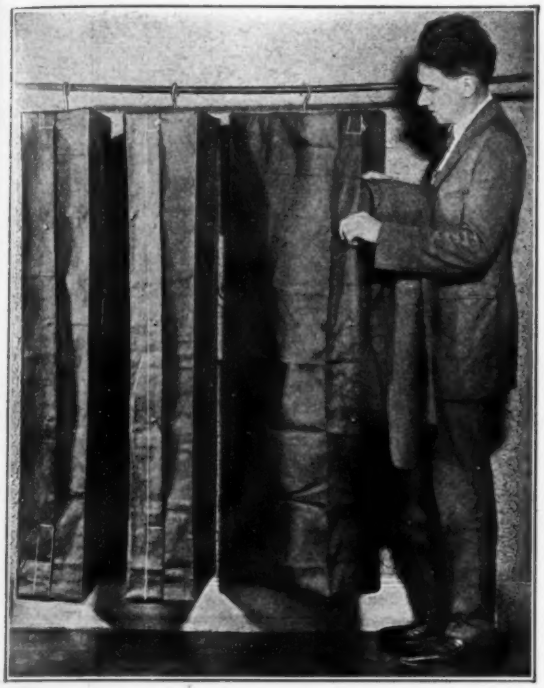
.....

Petrolagar



What Shall We Do With Patients' Clothes?

The problem solved



The "Stanley" Patients' Clothes Container fills a long felt want and answers the daily question *"what shall we do with patients' clothes?"*

The "Stanley" Patients' Clothes Container has many advantages over the present system in that our container takes up less space, is dust proof and will not wrinkle the clothes.

Made of heavy brown, durable material, measures 54 inches high, 18 inches deep and 8 inches wide and is provided with rust proof snaps to keep container closed. Will accommodate the necessary belongings of the patient.

The clothes are hung on regular hangers and then suspended from the metal support inside the container. The bottom frame provides a place for hats, shoes or other articles. A loop over the opening of the container for identification tag is an added feature. The top and bottom frames can be removed and the container sent to the laundry or sterilizer. Very simple, good looking and unquestionably worthwhile.

May we send one on approval? Price on application.

STANLEY SUPPLY CO.

Hospital Supplies and Equipment

118-120 East 25th St.,
New York, N. Y.

modern

Bob Evans
THE ARISTOCRAT OF UNIFORMS

No. 757
Burton's Irish Poplin
$5.00

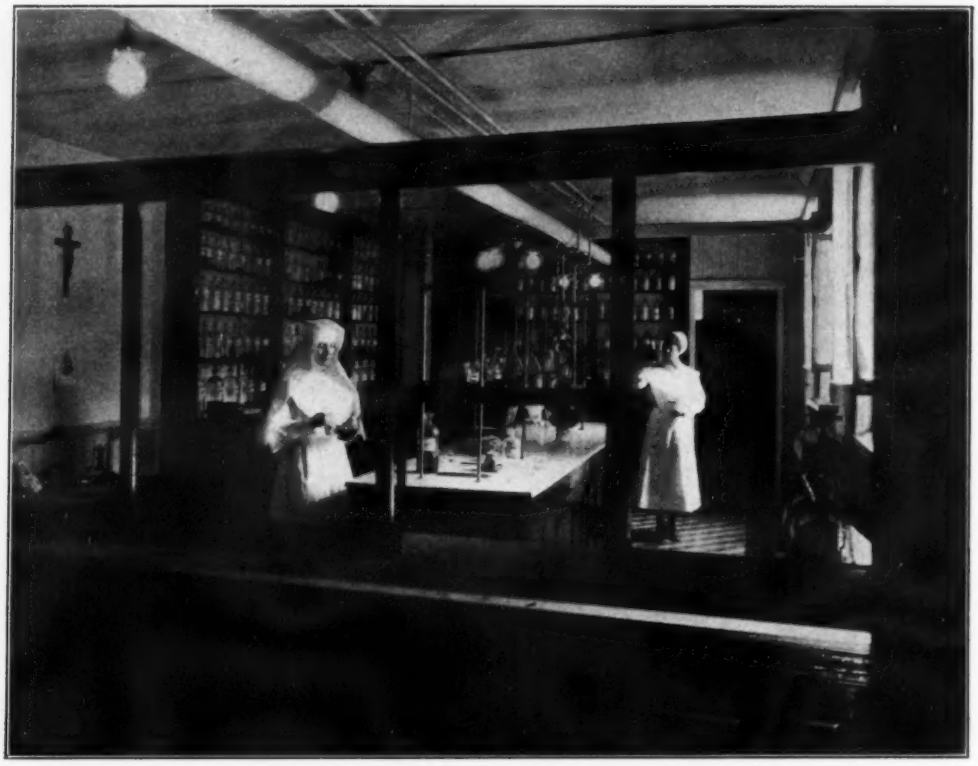
No. 219
Oriole Poplin
Supreme Quality
$3.98

DIGNITY and smartness enhance your professional appearance. Bob Evans offers you these in lasting fabrics at outstandingly moderate prices...The utmost in uniform value!

Sizes from 14 to 46

Write for Style Booklet "3H" Mentioning Dealer's Name

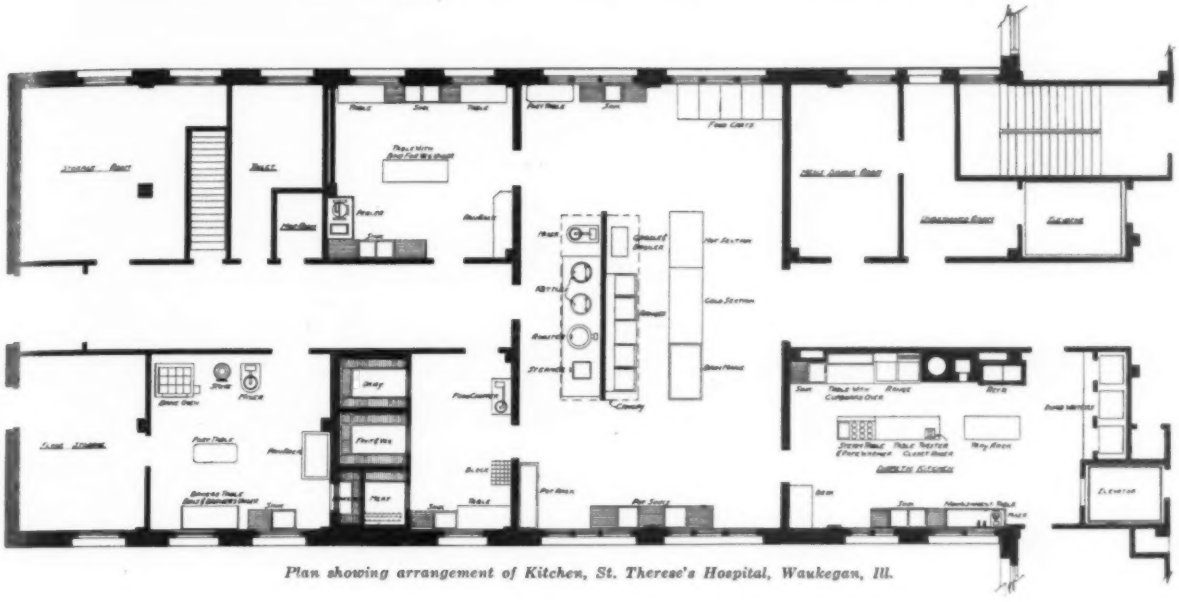
JACOBS BROTHERS, Inc. : Baltimore, Md.



PHARMACY, ST. JOSEPH'S HOSPITAL, BALTIMORE, MD.

DIETETIC LABORATORY, ST. JOSEPH'S HOSPITAL, BALTIMORE, MD.

KITCHEN PLANNING



Plan showing arrangement of Kitchen, St. Therese's Hospital, Waukegan, Ill.

WILL your kitchen save your steps, or will there be many needless ones?

WILL your equipment be modern and embody the latest ideas of construction?

WILL it be arranged so the food can be served quickly and hot or cold to your patients?

These questions can be answered and solved by our Engineering Department. Their advice is without charge or obligation to you. Write and we shall be glad to send a representative who can help you.

A few installations

St. Anne's Hospital, Chicago, Ill.
St. Bernard's Nurses' Home, Chicago, Ill.
St. Joseph's Hospital, Green Bay, Wis.
St. John's Hospital, Springfield, Ill.
St. Margaret's Hospital, Hammond, Ind.
St. Francis Hospital, Evanston, Ill.
Battle Creek Sanitarium, Battle Creek, Mich.
West Suburban Hospital, Oak Park, Ill.
Chicago Memorial Hospital, Chicago.
Women's and Children's Hospital, Chicago.
St. Therese's Hospital, Waukegan, Ill.
New Borgess Hospital, Kalamazoo, Mich.

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DETROIT, MICH.

Dishes come through clean and lustrous

WHEN Oakite is used in the washing machine, every dish comes through clean and with a high lustre—free from streaks or films. And, Oakite keeps the machine clean, too. Deposits of grease and insoluble soaps cannot form. Drains and sprays stay clear and unclogged.

Hospitals everywhere are finding that the Oakite way is the sure way to clean. Whether it is washing dishes or brightening up walls, floors and painted woodwork, this free-rinsing material makes the work easier and saves so much time that costs are certain to be lowered.

One of our Service Men will be glad to show you what Oakite can do. He will call on request. No obligation, of course.

Manufactured only by
OAKITE PRODUCTS, INC., 28H Thames St., NEW YORK, N. Y.

Oakite Service Men, cleaning specialists, are located at

Albany, N. Y.; Allentown, Pa.; *Atlanta; Altoona, Pa.; Baltimore; *Boston; Bridgeport; *Brooklyn, N. Y.; Buffalo; *Camden, N. J.; Canton, O.; Charlotte, N. C.; Chattanooga, Tenn.; *Chicago; *Cincinnati; *Cleveland; *Columbus, O.; *Dallas; *Davenport; *Dayton, O.; Decatur, Ill.; *Denver; Des Moines; *Detroit; Erie, Pa.; Fall River, Mass.; Flint, Mich.; Fresno, Cal.; *Grand Rapids, Mich.; Harrisburg, Pa.; Hartford; *Houston, Texas; *Indianapolis; *Jacksonville, Fla.; *Kansas City, Mo.; *Los Angeles; Louisville, Ky.; Madison, Wis.; *Memphis, Tenn.; *Milwaukee; *Minneapolis; *Moline, Ill.; *Montreal; Newark, N. J.; Newburg, N. Y.; New Haven; *New York; *Omaha, Neb.; *Oakland, Cal.; Oshkosh, Wis.; *Philadelphia; Phoenix, Ariz.; *Pittsburgh; Pleasantville, N. Y.; Portland, Me.; *Portland, Ore.; Poughkeepsie, N. Y.; Providence; Reading, Pa.; Richmond, Va.; *Rochester, N. Y.; Rockford, Ill.; *Rock Island; Sacramento; *San Francisco; *Seattle; South Bend, Ind.; Springfield, Mass.; *St. Louis; *St. Paul; Syracuse, N. Y.; *Toledo; *Toronto; Trenton; *Tulsa, Okla.; Utica, N. Y.; *Vancouver, B. C.; Waterbury, Conn.; Wichita, Kan.; Williamsport, Pa.; Worcester, Mass.

*Stocks of Oakite materials are carried in these cities.

OAKITE
TRADE MARK REG. U.S. PAT. OFF.
Industrial Cleaning Materials and Methods

(Concluded from Page 64a)

fire, and a man who fails to provide for his family by taking out life insurance is censured; yet, when smallpox is introduced into a community in the United States it usually finds many victims who have never been vaccinated and others who have not been vaccinated for many years. Nearly 34,000 cases of smallpox in the United States in the calendar year 1927, testify to the neglect of the people to utilize vaccination, the known means of preventing the disease."

A widespread outbreak of infantile paralysis occurred in the United States during the summer of 1927. The serious after-effects of this disease make it more to be dreaded than other diseases which cause many more cases of illness and even have a higher death rate. The Surgeon General calls attention to the importance of proper after-care in infantile paralysis.

Measles caused nearly 4,000 deaths in 41 states in 1927, a little more than half the number of deaths recorded for this disease in the preceding year. Measles is a disease that fluctuates widely from year to year. Whooping cough caused nearly 7,000 deaths in 42 states in 1927, and is, therefore, not the harmless disease it is generally considered.

An increase in the number of deaths from pellagra was reported in the lower Mississippi Valley region, consequent upon unfavorable industrial and economic conditions following the flood.

The death rate for influenza and pneumonia was unusually low in the United States during the calendar year 1927, the decrease in these important causes of death having contributed materially to the low general death rate for the year.

For several years prior to 1921 the case and death rates for diphtheria had been rising; but from 1921 to 1926 there was an improvement in the diphtheria conditions, while there was increased prevalence again in 1927. The case rate had begun to drop again toward the end of the present fiscal year.

In addition to the prevention of the importation of disease and the prevention of epidemics in the United States, the United States Public Health Service is authorized by law to investigate diseases of man, and in this work it not only carries on research in the basic sciences of public health, but lends its efforts to the solution of problems of applied public health—the effective economic control of diseases.

Among the subjects of fundamental research were studies of cancer, tuberculosis, goiter, leprosy, trachoma, undulant fever, typhus fever, Rocky Mountain spotted fever, pneumonia, and the venereal diseases. These studies were carried on by workers connected with the Hygienic Laboratory of the Public Health Service, which has become recognized throughout the world by its scientific research work in public health. Special studies were also made throughout the year on health problems in industry, child hygiene, and stream pollution.

In 150 ports of the United States, Alaska, and the insular possessions, hospital and outpatient treatment was furnished during the year by the U. S. Public Health Service to American merchant seamen and other legal beneficiaries to the extent of 1,354,545 patient days in hospital and 638,794 outpatient treatments. A total of 349,199 persons applied for medical service. It is an interesting commentary on the incidence and cost of venereal diseases to note in the report that these diseases comprised 18.7 per cent of the total admissions and were hospitalized at a cost of $812,096.

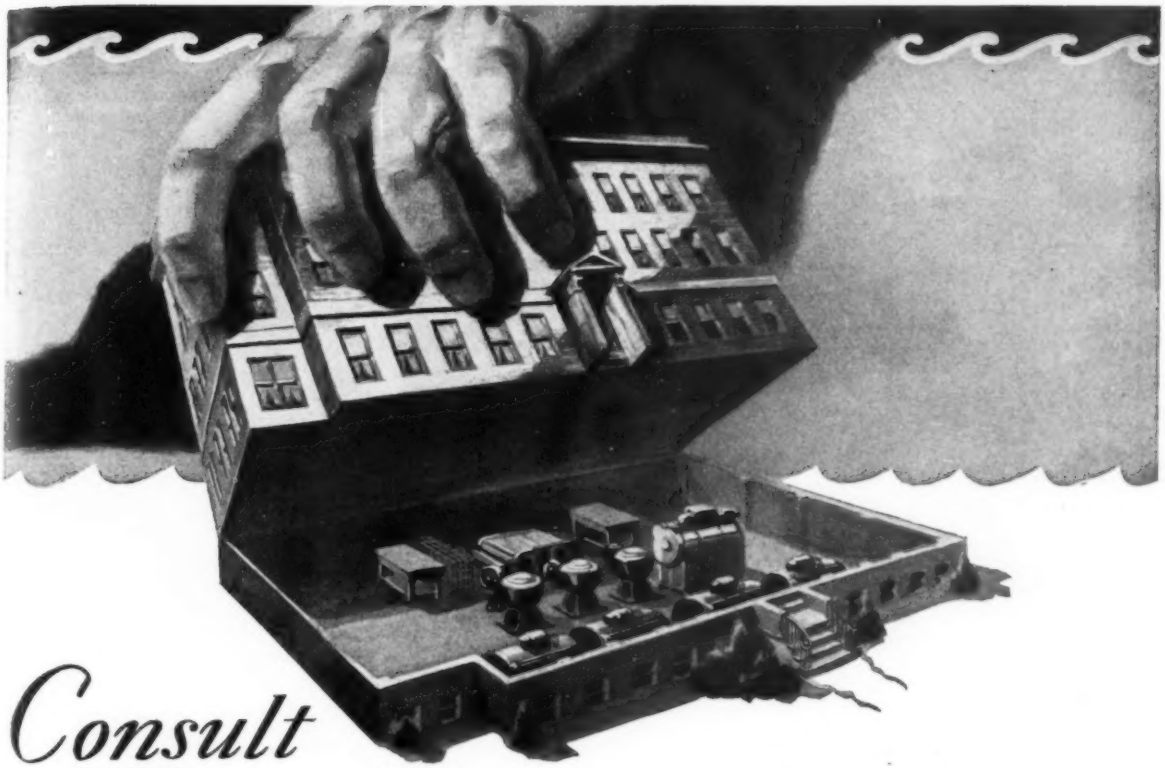
The personnel of the Public Health Service, consisting of a corps of medical and dental officers, sanitary engineers, pharmacists, nurses, specialists, and other technical and nontechnical employees, at mid-year 1928 consisted of 1,174 medical officers and persons of other scientific ratings, and 3,586 general and technical employees.

A Big Subscription

As president of the Catholic Charities of America, Patrick Cardinal Hayes, it is reported, will subscribe $20,000 to the fund for the rebuilding of St. Agnes Hospital for crippled children at White Plains, N. Y.

A Large Bequest

As the result of a settlement of the estate of the late Joseph A. Grindall, St. Agnes Hospital, Baltimore, Md., will receive $74,000.



Consult

Troy Advisory Service

in planning and laying out your hospital laundry

LOOK into any Troy-planned, Troy-equipped hospital laundry and you will see that the equipment layout has been suited to the work to be done, the space available, the location of doors, windows and bin space. Linens and garments are passed through the several laundering processes without waste motion—in a direct line from one operation to another. Future expansion, also, has been provided for if desired.

To assist the architect and hospital executive in giving these important factors the care and expert attention they deserve, Troy offers without charge the TROY HOSPITAL ADVISORY SERVICE—in planning, estimating and preparing specifications for laundry equipment in any type and size of hospital.

Feel free to take advantage of it.

TROY LAUNDRY MACHINERY CO., INC.

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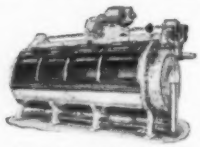
ROYAL LINE

A Machine for Every Laundry Need.

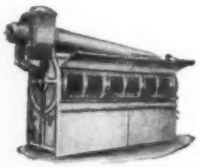


ALL METAL ROYAL WASHER

This Washer is very popular among Hospital superintendents due to being made of monel and gives long life and small consumption of supplies and power. Some special features are single lever control for stop, reversing and inching, Timken Roller bearings, gears run in oil, covered shafts, open back ribs in monel cylinder, brake for stopping washer, etc.

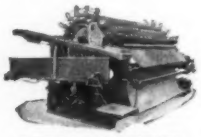
TOLHURST "CENTER-SLUNG" EXTRACTOR

This "Center-Slung" Extractor has many advantages over other types. It is low, extremely compact and will run smoothly with a light unbalanced load due to supporting the complete weight with links at a point on the curb that distributes the forces due to the unbalanced load and to gravity.



ROYAL TUMBLER

Our Royal Tumbler is designed of the Up-draft Suction Principle which assists in drying the clothes. Equipped with Timken Roller bearings, single lever control same as washer, cylinder is made of metal, coils are quill type eliminating return bends, Automatic temperature control and many other important features.



ROYAL CALENDER

The Royal Calender is a two cylinder type ironer, one over the other. Pressure on the goods being ironed is controlled by compressed air to 60 pounds pressure. Royal Calenders are less expensive to operate than any other ironer, and a much preferred piece of equipment, as both sides of the goods are ironed at once and the appearance closely resembles hand ironed work.

THE MAN WHO INVESTIGATES BUYS ROYAL EQUIPMENT

GENERAL LAUNDRY MACHINERY CORP.

820 WEST WASHINGTON BLVD.
CHICAGO, ILL.

PHILADELPHIA
53rd and Lansdowne Ave.

NEW YORK
183 Madison Ave.

TROY
648 Fulton St.

SAN FRANCISCO
1128 Mission St.

General Laundry Machinery Corp.
53rd and Lansdowne Ave.,
Philadelphia, Pa.

Gentlemen—I would like to know more about the following machines:

Name Machine.....

Name.....

Hospital.....

City.....

State.....3-29-P.H.

CHEMISTRY IN HEALTH AND DISEASE

J. W. O'Brien, M.D.

Man is a complex organization that is being constantly built up and maintained by numerous chemical combinations. The unit of living organism is the single cell and all animals, as well as man, present collections of cells constructed in specialized groups to perform particular functions. Chemical activity is always going on within the cells and the disintegrating and synthetical processes of chemical activity constantly go on during material life. The human body is a wonderful chemical laboratory, working automatically from the cradle to the grave, and, even in the tomb, decay is a manifestation of chemical action. Chemistry creates and destroys. The analytical nature of this science has trained the mind of man to study matter in all its essentials and to arrive at logical conclusions.

Oxygen in the Blood

Oxygen is the breath of life. All living creatures must have this element to sustain combustion within their cells. When oxygen is present in the blood, as in the arteries, the color of the blood stream is red; the veins carry blue blood because of the carbon dioxide in their red cells. The hemaglobin of the red corpuscles unites with the oxygen of the air as it comes through the lungs and very readily gives it up to the tissues that need it. In return it receives carbon dioxide and this it discharges through the lungs for oxygen. Carbon monoxide, a product of illuminating gas and gasoline engines, will unite permanently with hemaglobin, and often causes death because the cells of the body are deprived of their oxygen carrier, the hemaglobin. Chemistry teaches the value of fresh air, and this is the reason why physicians advocate the open-air treatment for pneumonia and tuberculosis.

Oxygen in its affinity for other elements within the cells is the source of bodily heat. A person with pure blood, who has the normal amount of iron in the hemaglobin of his red cells, obtains a large amount of oxygen. Such a person does not feel cold as readily as an anemic individual, whose iron content is low. Iron is frequently given to people who have lost much blood or whose blood has been weakened from disease.

Every living organism may be likened to a chemical workshop, whether it be plant or animal, whether it be large and composed of millions of cells or so small that it cannot be seen without the use of the microscope. The chemical reactions which result in the changing of complex substances into simpler compounds, and the synthetic changes in which simpler substances are put together to form complex compounds, constitute metabolism. Some of the reactions occurring in metabolism are easily performed in the chemical laboratory, but after a great many years of study, even the most skillful chemists and physiologists have but an indefinite knowledge of the nature of some of the processes.

The Blood Carries Supplies

The blood is a reservoir for the supplies that the body uses for the numerous chemical reactions of metabolism. It aims to retain what is essential and to eliminate what is undesirable. It is composed mainly of water and food derived from the intestines; oxygen taken through the lungs; and water, useful and otherwise, obtained from the tissues and glands. Before food can be transformed into blood, it must be put into a form acceptable to the intestines for absorption. We call this process of making food acceptable to the blood, digestion.

In chemistry, we have learned that food contains proteids, carbohydrates, fats, minerals, and water. We know that the body is a complex arrangement of these substances. The chemical action of the digestive glands changes proteids into proteoses; carbohydrates are reduced to sugar; fats are broken up into glycerin and fatty acids, the latter are saponified by the bile. The portal vein carries most of the digested food to the liver, where the sugar is changed into glycogen and stored within the liver cells for the carbohydrate needs of the body. If the sugar is allowed to circulate in the blood as such, the condition of diabetes or sugar poison results.

The Pancreas

The pancreas lies under the stomach and is the principal digestive organ. Its secretion empties with the bile into the small intestine and digests nearly all the food. It contains a substance which acts on the liver to convert the sugar into glycogen. Disease of the pancreas may result in diabetes when it affects the action of this sub-

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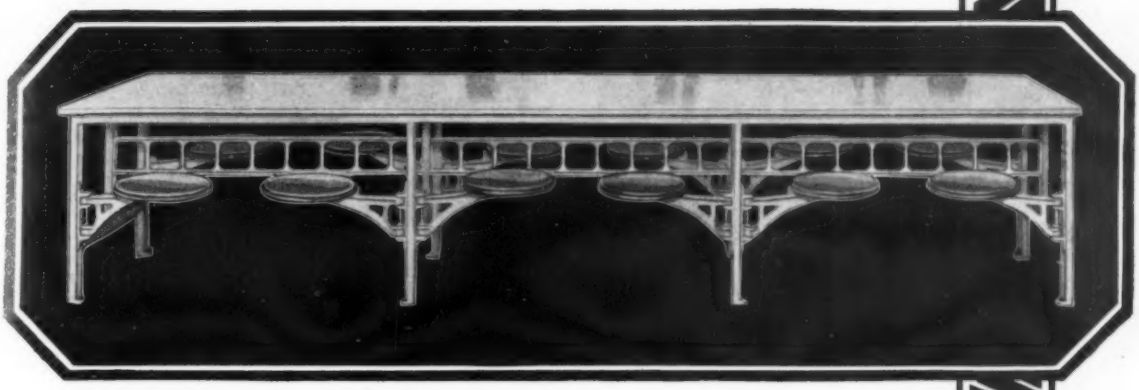


The New Sani Table No. 314 with seats attached is ideal. Note how the stools swing from the table. No chairs to move when cleaning. Everything remains neat, in its place.

Attractively finished in japan or white enamel paint with wood seats. Cast iron bases—heavy, strong and rigid, insure unlimited service. Tops are furnished in Sani Onyx, molded rubber or linoleum. Write to know more about this serviceable table No. 314.

SANI PRODUCTS CO.
North Chicago, Illinois
Selling Organization for Chicago Hardware Foundry Co.

Sani Products

Complete Food and Drink Equipment

Dix-Make UNIFORMS

This Has Been a Hard Winter —On Nurses and Their Uniforms!

THE RAVAGES of the "flu" have kept you on the go constantly—and your uniforms have been under an equally steady strain. If they have been Dix-Make, you appreciate more than ever the sturdy quality that made them stand by you through hurried, worried days. When you find it necessary to replenish your supply, be sure to see the new Dix-Make models for professional wear—incorporating many new features.

The new models in Dix-Make Uniforms are now on display in all department stores. Write for 1929 style book. Address Dept. F9-3.

MODEL 609. This smart professional uniform is made of Permanent Finish Broadcloth, a material which will never lose its beautiful finish. Removable-shank pearl buttons. Sizes 16 to 46.

PRICE, $5.00

HENRY A. DIX & SONS CORPORATION
141 MADISON AVENUE NEW YORK

(Concluded from Page 72a)

stance. One of the miracles of modern chemistry is the discovery of this substance, which has been given the name of insulin. The use of insulin, obtained from the pancreas of animals, has robbed diabetes of its terrors, has saved diabetic children from an early death, and has helped to prolong the lives of adults afflicted with this malady. It is also used, combined with glucose, in certain cases of shock, acidosis, and malnutrition.

The secretion of the stomach is acid and the intestinal juices are normally alkaline in health. The action of the stomach depends upon many chemical reactions. Diluted hydrochloric acid is sometimes given when the normal acid is deficient but when it is in excess, as in ulcer or fermentation, bicarbonate of soda, magnesium oxide, or other alkalies are given to weaken or neutralize it.

In addition to the lungs, the organs of excretion or elimination are the kidneys, intestines, and skin. These throw out the waste material which is not necessary for the body and the retention of which is injurious and may cause death. The waste is the end product of chemical changes enacted by the cells. Constipation, bowel obstruction, kidney disease, and extensive skin destruction prevent proper elimination of the waste materials which are really poisonous if too long retained by the system. We see, therefore, that the body is maintained by chemical changes and often injured by perverted chemical activity. Repair and waste go hand in hand in a normally functioning body.

Chemicals Useful in Medicine

Many chemical reagents are used to test the various secretions of the body. Urinary examination, for example, calls for a knowledge of chemistry. The urine may be acid or alkaline. It may contain poisons of various kinds.

To determine the cause of death, a chemist is often needed. Every coroner relies upon a chemist to determine the cause of death in many obscure cases. A capable physician must have some knowledge of chemistry. At the present time, chemistry in most of its branches, is being taught to medical students.

The body has all it can do to maintain its various activities in a healthy state. It is constantly fighting and working for existence. Innumerable enemies are aiming at its destruction. Some of them are so small that they can be seen only under the microscope. These are usually called germs or bacteria and must be stained to bring them into view. Chemistry has elaborated stains for nearly all bacteria. Thus, for example, by means of carbo-fuchsin, tubercle bacilli are differentiated from other bacteria. The pathologist also needs chemistry to help him to isolate and study morbid tissues.

When the human organism is working properly, the inherent strength of its vitality may be strong enough to overcome disease. However, it may not be equal to the task. Here, the science of chemistry steps in to fight on its side. Malaria succumbs to quinine, syphillis to mercury and bismuth. Insulin relieves diabetes and so on. In fact, modern surgery begins in some sort with the discovery that carbolic acid is an antiseptic, as was first brought out in 1870 in a crude and practical manner by Lord Lister, when he applied it to surgical wounds. Since his time, we may say that modern surgery began to develop along rational lines. Wound infections are becoming less common because of the application of drugs elaborated in the chemical laboratory.

The modern drug store, the bacteriological laboratory, the up-to-date hospital, the painless dental office, all owe chemistry a debt of everlasting gratitude. No surgeon can hope to operate successfully, with rapid healing wounds, without the assistance of chemistry. Anesthetics afford the surgeon an opportunity to work humanely and boldly and these are the result of chemical knowledge. Radium, the wonder mineral, may be cited as a recent triumph for chemistry. Cancer and other growths frequently yield to its influence.

Sanitation is the outcome of chemical knowledge. The armies of former times were destroyed more by disease than by the sword or bullet. Today, thanks to chemistry, one may live on the battle line without much fear from disease, but in great dread, however, from death due to poisonous gases and explosives, products of chemistry. The great plagues of the past are no longer met with since chemistry has given the means to prevent them. Pain, filth, and disease are gradually succumbing to this great science, and thus life's expectancy is being prolonged. It is teaching mankind to appreciate the pure and to abhor the foul things of nature and to enjoy life in health and peace.

Powdered Chipso

—keeps a normal washroom fit

—puts an ailing washroom on its feet

Although Powdered Chipso was not specially designed for hospital laundry use, we soon discovered that it possessed many features which made it unusually desirable for this purpose. Today, you will find Powdered Chipso doing a splendid job in the washrooms of many of the best-known hospitals in this country.

Here, in brief, are the outstanding advantages of Powdered Chipso:

A balanced product-- contains *all* the cleaning ingredients necessary for thorough cleansing, at the same time assuring unusual safety to fabric and color.

Quick dissolving;

Rich sudsing;

Free rinsing;

Ready for immediate use-- no pre-mixing necessary.

Economical-- saves time, money. Starts to work at once and cleanses fabrics surprisingly fast.

Requires less supervision-- safe even in unskilled hands.

Prolongs the life of hospital linens-- and keeps fabrics sweet-smelling and free from grayness. Aids in the removal of many stains.

Your washroom will run more smoothly on a diet of Powdered Chipso. A trial shipment will prove it.

PROCTER & GAMBLE
CINCINNATI, O.

Good Blankets-- How to Tell Them

Don't try to tell a blanket. Tell us what you want to use a blanket for and let us recommend one which we know will answer your needs.

Cheap blankets may prove expensive in the long run if they are made for one purpose and are used for another. Even expensive blankets, when used for purposes other than those for which they were designed, will cause waste and dissatisfaction.

When dealing with a house such as ours, you may be assured that you get dollar for dollar value plus 38 years of experience in selecting blankets for specific hospital purposes.

THE PIONEER INSTITUTION SUPPLY HOUSE
ESTABLISHED 1891
RHOADS & COMPANY
PHILADELPHIA, PA.

There is a blanket for every purpose.

Let us recommend the proper one. Ask for samples and prices.

RHOADS & COMPANY

107-115 North 11th Street
PHILADELPHIA

INTRODUCES A NEW PRINCIPLE INTO THE FLOOR TREATMENT FIELD . . . THAT OF COMBINING VARNISH AND LIQUID FLOOR WAX. THE RESULT IS A PERFECT FLOOR TREATMENT WITH THE ADVANTAGES OF BOTH VARNISH AND WAX . . . WITHOUT THE FAULTS OF EITHER.

WHY CAR-NA-VAR IS EFFECTIVE

1. The varnish gums give long wearing life and a brilliant varnish-like finish.
2. The wax content contributes pliability and prevents marring or scratching.
3. CAR-NA-VAR is easily applied with a mop—frequent scrubbing is unnecessary since dirt cannot become imbedded in the hard, smooth surface.
4. Repairs can be made on worn spots without showing overlaps or re-finishing the entire surface. This cuts down the maintenance costs.

Shipped in containers convenient to use.

Write for Descriptive Booklet and Prices.

CONTINENTAL CHEMICAL CORPORATION

WATSEKA 219 Yount Street ILLINOIS.

BRANCH OFFICES AND WAREHOUSE STOCKS FROM COAST TO COAST AND IN CANADA

MANY HOSPITAL FIRES

The quarterly publication of the National Fire Protection Association for Jan., 1929, contains some interesting statistics regarding fires in institutions. There are 184 institution fires recorded in the files of the association. Nearly all of these occurred during the past ten years and are, by no means, a complete record of all such fires.

According to these records, hospitals are the favorite places for institution fires. The classes of institutions with the number of fires are: Almshouses, 10; homes for aged, 17; miscellaneous homes, 3; orphanages, 28; hospitals, 104; insane asylums, 22.

Causes of Fires

The following causes have been assigned for these fires: Electrical causes, 39; sparks on roofs, 19; incendiary, 13; stoves, furnaces, boilers, and their pipes, 11; careless smoking, 7; defective chimneys and flues, 7; ignition of grease or inflammable liquid on stove, 7; spontaneous ignition, 7; miscellaneous known causes, 7; defective oil burner, 3; lightning, 3; careless use of matches, 2; escaping gas ignited, 2; lamp or stove upset, 2; steam pipes, 2; careless fumigation, 1; explosion of lamp or stove, 1; gas jet igniting curtain, 1; gasoline ignited, 1; unknown, 49.

A table is given in which fire losses in hospitals, sanatoriums, asylums, and homes for the aged for the years 1922 to 1926 inclusive are listed according to the records of the National Board of Fire Underwriters. The causes in the order of amount of loss are: Sparks on roofs; stoves, furnaces, boilers, and their pipes; matches and smoking; chimneys, flues, cupolas, and stacks overheated or defective; exposure; spontaneous combustion; electricity (except electric irons and similar small devices); petroleum and its products; lighting; gas; hot irons (including electrical); hot ashes and coals—open fires; friction sparks, occasioned by running machinery; incendiarism; open lights; explosions; hot grease, oil, tar, wax, asphalt, ignition of; sparks arising from combustion; steam and hot-water pipes; rubbish and litter; fireworks, fire crackers, balloons, etc.

Electrical causes lead the list of the N. F. P. A., 39 fires being thus classified. The various kinds of electrical causes and the number of fires charged to each are: Defective wiring, 22; electric iron left on, 5; short circuit (X-ray machine), 3; short circuit on Christmas-tree lights, 2; short circuit ignited gas in elevator well, 1; short circuit in lighting fixture, 1; light bulb ignited holiday decorations, 1; defective elevator motor, 1; light bulb ignited X-ray film, 1; radio charger left on, 1; arc due to fuse gap bridged with pennies, 1.

Sparks on wooden roofs were a prolific source of fires.

Twenty-one fires attributed to stoves, furnaces, etc., are classified thus: Defective chimneys and flues, 7; leaky oil burner on hot-water heater, 1; leaky oil piping, 1; faulty installation, 1; overheated furnace, 5; overheated chimney, 1; excess heat under range, 1; heat from boiler ignited floor, 1; heat from gas stove ignited floor, 1; explosion in heater, 2.

A match was tossed into a clothes chute, a cigarette dropped into a film drawer, a cigarette ignited a curtain, another was dropped into oily rags, and another tossed back of a radiator.

Ignition of grease or liquids is generally due to carelessness. Grease on a stove caused two of the fires, and one was caused by each of the following accidents: Syrup boiled over; floor wax boiled over; rubbing alcohol ignited while being heated; medicinal oil ignited while being heated.

Miscellaneous known causes of fires were: Rubbish near heater; explosion of disinfectant; film ignited in motion-picture booth, rubbish ignited; support for boiler gave way, breaking oil pipes; ignition of film in storage.

Fire Protection

The predominating construction of the buildings involved in these fires was, masonry walls with wooden interior. Very few of them were fire resistive.

Only a very few of the buildings in which these fires occurred were equipped with automatic sprinklers. The sprinklers, where they had been installed, controlled the fire.

Another matter brought out in this report of the N. F. P. A. is that fire drills are very effective in saving lives in case of fire.

Established 1876
Over Fifty Years of Service

"WILLIAMS STANDARD" QUALITY NURSES UNIFORMS and CAPES

FINGER LENGTH CAPE

Nurses' Uniform Capes—all lengths —made of all wool cloths and linings sponged so they will not rain spot (waterproofed, if you so desire). Sewed with silk and tailored as they should be for Service. Military or Storm Collars. School Initials on Collars if desired. Frog or Tab fastening. Gilt State or American Hospital Association buttons.

Contractors for Training School Outfits according to school specifications.

All grades of seersuckers or Zephyrs for uniforms—stripes or plain colors. Aprons, Bibs and Cuffs of Indian Head, Pequot, and other standard sheetings. Pearl Studs, Pins, Etc.

Information and Samples on request.

Made-to-Measure or Stock
Graduate Nurses' White Uniforms.

STUDENT OUTFIT

Cotton and linen clothing (Shrunken) for Staff Surgeons, Resident Physicians and Orderlies.
CATALOG N—NURSES CATALOG D—DOCTORS
Designers and Manufacturers

C. D. WILLIAMS & COMPANY, 246 South 11th St., PHILADELPHIA

With the Manufacturers and Dealers

Parke, Davis, & Co., Appoints New Officers

Parke, Davis, & Co., Detroit, Mich., announce the appointment of Dr. A. Wm. Lescohier as general manager. Dr. Lescohier has been connected with the company for the past 20 years and until his new appointment occupied the position of asssitant to the president.

The company also announces the appointment of Dr. Louis Klein as promotion manager, and Mr. Ralph G. Sickels as advertising manager. Both men have been connected with the company for several years.

Booklet on Evaporated Milk

Available to teachers of science, chemistry, and home economics and others who have a professional or lay interest in the product is "The Story of Evaporated Milk," a profusely illustrated 32-page booklet on the manufacturing processes and uses of evaporated milk. It will be mailed postpaid upon request to the Evaporated Milk Association, 231 South La Salle Street, Chicago.

Ohio Chemical Branch Changes Location

Effective Feb. 1, the Birmingham Branch of The Ohio Chemical and Manufacturing Company is removed to 724 Third Avenue, North, Birmingham, Ala. The telephone number, 7-3175, remains the same.

Kansas City Oxygen Changes Chicago Address

On Feb. 1, the Chicago sales branch of the Kansas City Oxygen Gas Company moved into new enlarged quarters at 1660 South Ogden Avenue.

(Continued on Page 80a)

Large Output of Ambulances

The Commercial Car Division of the Studebaker Corporation was organized three and one-half years ago. Its growth since that time has been constant. Today, it is one of the three largest producers of busses in the United States and by far the largest producer of funeral cars and ambulances.

The Studebaker commercial-car business includes busses, various types of delivery cars, two lines of funeral cars and ambulances, police patrols, and fire equipment.

New Catalog

Albert Pick-Barth Company, Inc., of Chicago and New York, have just issued their new general catalog No. E-32. The new catalog, which is profusely illustrated, lists: Silverware, glassware, chinaware, linens, kitchen equipment, refrigerators, cafeteria and lunchroom equipment, furniture, bedding, floor coverings, draperies, uniforms, hospital equipment, janitors' supplies, beds, carpets, chairs, and hundreds of special items. A net price is quoted for each item in various quantities.

$2,000 in Prizes for Kitchen Sink Design

Hospitals were not only the first to adopt sanitary materials on a large scale, but they have been the consistent proponents of sanitation wherever health could be effected by such a lack. One of the best known sanitary materials, Monel Metal, was used by hospitals almost as soon as it was introduced and this metal is today perhaps the best known metal in connection with hospital equipment.

Readers of this magazine will now be interested to know that Monel Metal is to be introduced into the domestic kitchen for such purposes as kitchen sinks, drainboards, shelving, and cabinet tops. To foster a better design of kitchen sinks, the Art Alliance of America announces a competition with prizes aggregating $2,000, donated by The International Nickel Company. All designs are to be capable of being manufactured in Monel Metal. The competition is open to all comers who comply with the specifications outlined in the competition folder which may be obtained from the Art Alliance of America, 65 East 56th Street, New York City. The designs will be judged on Tuesday, March 19th, 1929, by a jury of men and women

Escolite and Cowles Scientific Service *Protect Your Linens*

THE COWLES DETERGENT CO. CLEVELAND, O.

"GOOD WASHING WINS GOOD WILL"

© CDC

℞

The first step from the sickbed

Consoles the patient— relieves the nurse

THE PICTURE tells the story. Patients weary of the bed. In this chair they may sit up or lie back comfortably at any angle—for reading, dozing, visiting.

The feet and legs are perfectly supported. The soft leg-rest slides out like a drawer. . . . The supple leather cushions yield to every impress of the body.

This is all-day comfort for the sick and relieves the nurse of a thousand and one little attentions otherwise required.

Recognized hospitals gladly furnished with a ROYAL-*Easy for four or five weeks trial. Write today:*

Royal Easy Chair Co.
Sturgis, Mich.

No. 1009

Royal-Easy
RECLINING CHAIRS

(Continued from Page 78a)

well known in the fields of architecture, interior decoration, and home economics. All designs must reach the Art Alliance offices between March 14th and 18th.

The International Nickel Company, Inc.

Labeled Medicine Falsely

John Beneckson, chemist and pharmacist, was sentenced to a term in the penitentiary by the court of special sessions of the City of New York, Jan. 3. The charge was of violating the law of trade-marks.

It was alleged that Beneckson had sold quantities of some concoction in bottles bearing labels which purported to show that the contents were the drug known as Allanol, which is distributed only by the wholesale firm of Hoffman-La-Roche Co.

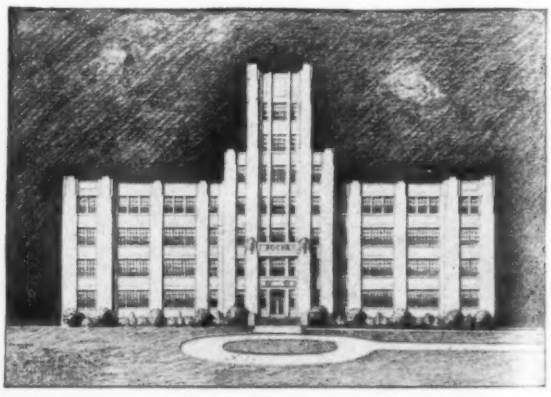
Officials of the Hoffman-La-Roche Co. traced the fake to Beneckson. Presiding Justice, Hon. Max Solomon, in stating the findings of the court, took occasion to emphasize the seriousness of a crime of this nature which might easily result in loss of life. The judge also commended the diligence of the district attorney in prosecuting the case.

Anstice Acquires Victoria Peeler

Josiah Anstice and Co., Inc., Rochester, N. Y., has purchased all manufacturing and selling rights of Victoria peelers, including patents. The Victoria vegetable peeler will be added to the well-known line of Sterling peelers, thus giving their manufacturers a complete coverage of the field.

Hoffmann-La Roche New Building

The new plant of Hoffman-La Roche at Nutley, New Jersey, is now well under way. The imposing main administration and scientific building of the plant is rising rapidly on that barren hilltop in the Orange foothills which saw but a few weeks ago the Roche family assembled to celebrate the digging of its huge foundation. This great white structure of classic simplicity is being erected 165 feet across a knoll overlooking the town. Wings at each end extend backward 104 feet. A central tower rises three stories above the four main floors. On the roof are being constructed analytical, pharmacological, and physiological laboratories well supplied with the light, fresh air, and freedom from dust so essential to the production of fine pharmaceuticals. Three acres of landscape gardens will add further beauty to the group of scientific buildings for the production of the various basic chemicals that enter into Roche specialties.



THE NEW BUILDING OF THE HOFFMANN-LA ROCHE COMPANY AT NUTLEY, N. J.

Adequate research facilities are being installed for the scientific study of new problems of chemistry, pharmacology, and therapeutics, so that the Roche organization backed by its many scientifically trained men, can contribute through research its share toward that store of knowledge which is fundamental in modern scientific medicine.

And all this 25 acres of countryside now being developed as the new Roche home, is the realization of dreams dreamed not so many years ago by a young pharmacist in a Philadelphia drug store. ELMER H. BOBST, executive director of Hoffmann-La Roche, inspired in early youth by faith in Roche drugs, sought opportunity with the house and has led it onward to success. In dedicating the new

(Concluded on Page 84a)

The Spring-Air MATTRESS

TRADEMARK REGISTERED

"You can't buy bed-comfort by the pound"

This shows the SPRING-AIR Mattress on a hospital tilting bed. It takes the form of any bed of this type with no attention or effort. (Patented by Francis Karr.)

There is also the Karr Inner-Spring Mattress for those who prefer "Spring-Air" in one-piece.

Flexibility
Durability
Cleanliness
Comfort
Economy
Ease of Handling

Help the patient to sleep completely relaxed

In a year and a half more than 400 hospitals have put in $pring-Air Mattresses, to a greater or lesser extent. Also more than 260 fine hotels.

The following hospitals are among those using large quantities of Spring-Air Mattresses:

The steel cushions roll and fold as easily as the pad—True flexibility.

St. Luke's Hospital, Cleveland, Ohio
St. Elizabeth's Hospital, Dayton, Ohio
The Christ Hospital, Cincinnati, Ohio
Saginaw General Hospital, Saginaw, Mich.
Muskegon County Tuberculosis San., Muskegon, Mich.
Belmont Hospital, Chicago.
Presbyterian Hospital, Chicago.
Elizabeth Steel Magee Hospital, Pittsburgh
Battle Creek Sanitarium, Hospital Dept., Battle Creek
Lakeside Hospital, Kendallville, Indiana
St. Joseph's Hospital, Chippewa Falls, Wis.
Passavant Hospital, Pittsburgh
St. Margaret's Hospital, Pittsburgh
Allegheny General Hospital, Pittsburgh
Hackley Hospital, Muskegon, Mich.
West Suburban Hospital, Oak Park, Illinois
Edward W. Sparrow Hospital, Lansing, Mich.
Robert Packer Hospital, Sayre, Penna.
Harper Hospital, Detroit, Mich.
Hurley Memorial Hospital, Flint, Mich.
Detroit Tuberculosis Sanatorium, Detroit, Mich.
Providence Hospital, Detroit, Mich.
Millard Fillmore Hospital, Buffalo, N. Y.
Parkway Hospital, New York City
Toronto Western Hospital, Toronto, Canada
California Sanitarium, Belmont, Calif.
Woman's Hospital, Cleveland
St. Elizabeth's Hospital, Youngstown, Ohio

Dr. Hamilton, Superintendent of the great Harper Hospital, Detroit, says, "There is nothing more to be tested about the Spring-Air Mattress. It is entirely satisfactory in every particular. It is unequalled in comfort, in ease of handling, and in cleanliness."

Augustus Nulle, Managing Director of the Waldorf Astoria, New York, writes us, "'Spring-Air' is more than you claim for it."

CHARLES KARR COMPANY, *Holland, Michigan*

Your Student Nurses

are correctly and uniformly attired when the outfits are furnished by BRUCK.

We make Training School Nurses' Outfits to your regulation. Any plain color, stripe, or check furnished in FAST COLOR material, SHRUNKEN in our own plant. BRUCK workmanship insures longest wearing garments under any circumstances.

SAMPLE GARMENTS SENT ON APPROVAL TO INSTITUTIONS.

BRUCK-TAILORED CAPES UNEQUALED IN QUALITY AND PRICE

ALL COLOR COMBINATIONS - ALL STYLES SEND FOR OUR NEW CAPE STYLE-BOOK

Bruck's Nurses Outfitting Co.
173-175 East 87th Street,
New York City.

MECHANICAL LIFT POSTURE BED

Model 876-39 3 Ft. Width Only

THE specifications of this new bed are such as to insure simple, positive operation, easy handling and lasting satisfaction. Light enough to be easily handled—heavy enough for any use.

HAS Mechanical Posture Spring, Inside Fracture Bar, Telescoping Irrigation Rod, Extension Stems, Ball Bearing Casters with 3" rubber tired wheels. Handles fold out of way when not in use. Head: 52", foot: 38", spring: 26". Finished in American Walnut with Spring in Brown. Also furnished in any wood finish or color of enamel, if desired. Write for prices.

UNION BED & SPRING COMPANY
Offices and Salesroom
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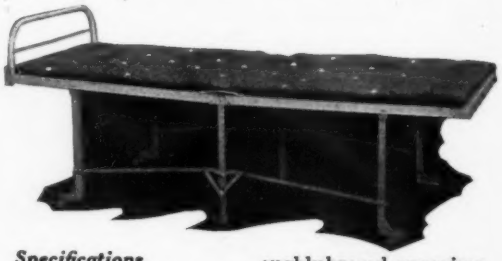
A STURDY COT FOR YOUR EMERGENCY ROOM



Specifications

(1) Steel Link Fabric.
(2) Mattress 2" thick.
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(4) WEIGHT—Superfluous parts of this cot have been eliminated and the finished product, without sacrificing its strength, weighs ONLY 35 lbs.
(5) STRENGTH—Much time has been given to the study of the best suited materials to be used in this cot. Angle iron thoroughly braced comprises the frame work, and tubing is used for the headpiece.

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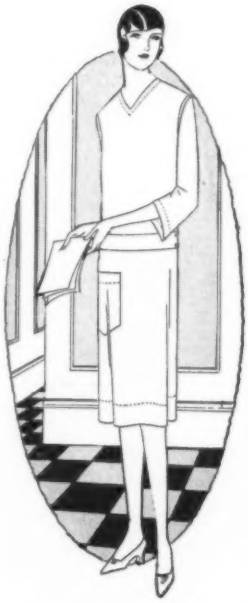

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Faultless Aseptic
Hospital Furniture

(Concluded from Page 80a)

enterprise at Nutley, New Jersey, last November, Mr. Bobst said in part:

"We shall not be satisfied with mere success. We pledge ourselves to an even greater aim. We shall strive by ever increasing study and research to make this institution a notable factor in guarding the life and health of the nation."

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Manager Hospital Sales Department,
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Hoffman-La Roche expect to leave New York City for their Jersey home early in May. The new enterprise at Nutley is the culmination of the high hopes and expectations of the founder of the firm, and of its present manager, Elmer Bobst, that some day it would require a million-dollar factory to afford requisite facilities for the further expansion of Roche traditions.

A Generous Gift

A gift of $100,000 to the French Hospital, a Catholic institution at Brooklyn, N. Y., as a contribution toward its campaign for a building and equipment fund of $1,250,000, has been made by Francois Coty, according to announcement of Albert Blum, chairman of the committee. The campaign opened Feb. 4. The fund is to be expended in providing private rooms and hospitalization quarters for persons unable to pay for the best care, who are unwilling to accept charity.

Sister Dies at Chicago

Word was recently received at Montcalm Sanitarium, Manitou Springs, Colo., of the death of Sister M. Vincent in a Chicago hospital conducted by the Sisters of Mercy. Sister Vincent conducted the Colorado sanitarium for many years until last August. She was a victim of the "flu."

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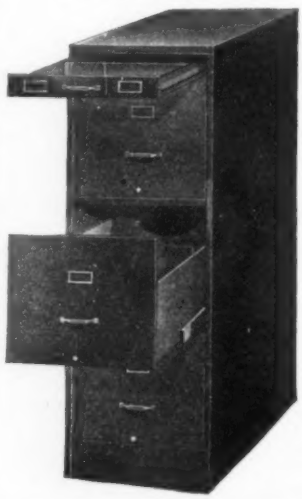

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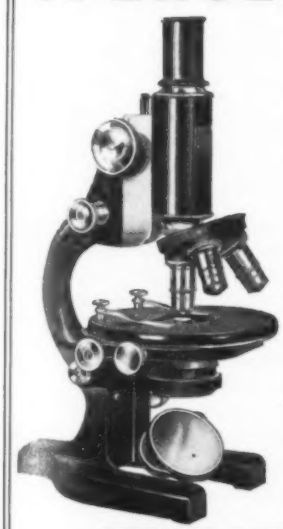

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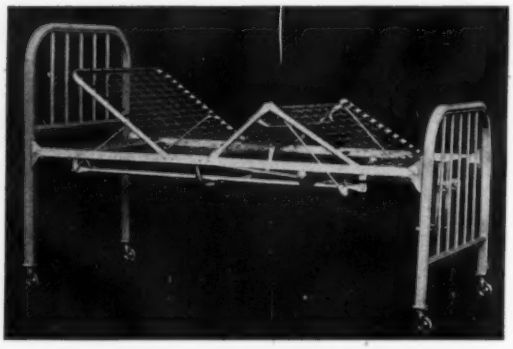

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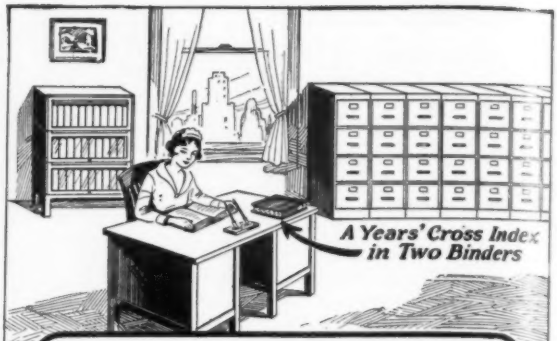

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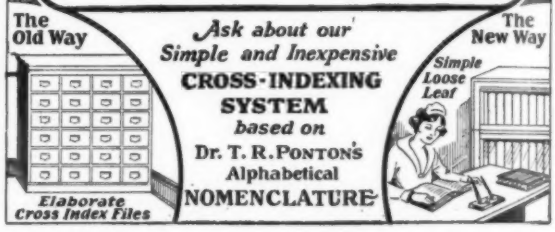
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Wanted—(a) General duty nurse for men's infirmary of middle western tuberculosis sanatorium; preferably some one who has had tuberculosis experience; $90 first month, increased to $100 second month, including maintenance. (b) Two general duty nurses for a large hospital in California; nurses' home exceedingly comfortable and attractive; eight-hour duty; six-day week; $90, maintenance. (c) Three general duty nurses for splendidly equipped hospital in New York; living and working conditions considerably above the average; New York registration required. 351, **Medical Bureau, Pittsfield Building, Chicago.**

Wanted—(a) Superintendent of nurses; 200-bed hospital; splendidly equipped in every way; new nurses' home; accredited training school; most cooperative staff; Catholic preferred. (b) Assistant superintendent of nurses; preferably some one who has had supervising experience and normal school or college training; 125-bed hospital; midwest metropolis. (c) Instructress of nurses for university hospital; $150, maintenance including private suite in new nurses' home. 353, **Medical Bureau, Pittsfield Building, Chicago.**

Aznoe's Calls for Catholic Nurses: (A) Anesthetist for 100-bed hospital; middlewest. Heidbrink machine. $125. (B) General Duty Nurse, Chicago vicinity; 85-bed general hospital; $100. (C) Instructor eligible New York registration; 100-bed hospital. New nurses' home. $125. No. 2163, Aznoe's Central Registry for Nurses, 30 North Michigan Avenue, Chicago, Ill.

Aznoe's Openings in Catholic Hospitals: (A) Obstetrical Nurse able to take charge of delivery room and supervise mothers and babies; 80-bed hospital; Illinois. Open salary. (B) Superintendent of Nurses, New York registered; $150 and excellent maintenance. (C) Catholic Supervising Instructor for 100-bed Eastern hospital. $125 to start. No. 2164, Aznoe's Central Registry for Nurses, 30 North Michigan Avenue, Chicago, Ill.

Aznoe's Miscellaneous Calls: (A) Nurse with Operating Room experience and executive ability to superintend 20-bed private hospital; Wisconsin. $100 to start; increase to $125 or salary and percentage of profits. (B) Dietitian-Housekeeper with practical experience in institutional kitchen serving 1,000 to 2,000. Must be cooperative—able to handle employees pleasantly; $100. No. 2165, Aznoe's Central Registry for Nurses, 30 North Michigan Avenue, Chicago, Ill.

Dietitian: Experienced administrator wanted for a new Hospital. **Executives:** (a) Superintendent of nurses, northwest; liberal salary; excellent living conditions. (b) Assistant superintendent—middle west. (c) Superintendent of nurses—new hospital—salary $200.00 and maintenance. **Instructors:** (a) Class A hospital, Chicago area, $150.00 and maintenance. (b) Middle western city; salary open. (c) Eastern, New York area. Good salary and environment. **Supervisors:** (a) Obstetrical. New York. (b) Montana. (c) Surgical; Chicago area. Others, all desirable. **Technicians:** (a) X-Ray. East. Salary open. (b) Chemistry. Competent to take full charge. Detroit area. **Allied Professional Bureaus, 742 Marshall Field Annex Bldg., Chicago.**

Wanted—Class A physicians and dentists, accredited graduate nurses, hospital executives, dietitans, bacteriologists and laboratory technicians to register with The Medical Bureau; requests from all parts of America; send for application form. The Medical Bureau, 1330 Pittsfield Bldg., Chicago, Ill.

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POSITIONS WANTED

Wanted—Positions for the following: (a) Anaesthetist; graduate of eastern hospital; postgraduate work in pediatrics; course in anaesthesia, graduate school of the University of Pennsylvania; four years' experience as supervisor before taking this course. (b) Technician; A.B. and A.M. degrees; two years, instructor in bacteriology, eastern college; three years, laboratory technician with group clinic operating private hospital of 100 beds. 354, **Medical Bureau, Pittsfield Building, Chicago.**

Wanted—Position by experienced superintendent of nurses; graduate of a famed hospital; Master's degree from middle western university; thoroughly qualified and experienced as a teacher; three years, instructress and assistant superintendent of nurses, 350-bed hospital; prefers position requiring her to teach one or more subjects. 355, **Medical Bureau, Pittsfield Building, Chicago.**

Wanted—Dietetic position; B.S., Home Economics; student course, 400-bed university hospital; seven years' experience as hospital dietitian; exceptionally industrious; splendid executive; has thorough understanding of medical dietetics. 356, **Medical Bureau, Pittsfield Building, Chicago.**

Attendant: 5 years' experience; preferably in large hospital or sanitarium. Can give references. Address F. C. Velten, 1000 Muskego Ave., Milwaukee, Wis.

Position Wanted—R.N., graduate 1922, Catholic. Desires position in Minnesota or Illinois as Supervisor, Night Supervisor, or General Duty. References furnished. Address P. 57, Hospital Progress, Milwaukee, Wis.

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Keever Starch Company, The
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Mandel Brothers
Royal Uniform Co.
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Universal Hospital Supply Co.
Wash Fabric Company
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Hospital Supply Company, The
Kny-Scheerer Corp. of America
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Schoedinger, F. O.
Thorner Brothers

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Ohio Chemical & Mfg. Co.

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Meinecke & Company
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Ross, Inc., Will
Sexton & Co., John
Thorner Brothers

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Hoffmann-La Roche Chemical Works
Parke, Davis & Company
Pick-Barth Companies, Albert
Sharp & Dohme
Squibb & Sons, E. R.

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Mandel Brothers
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Pick-Barth Companies, Albert
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Utica Steam & Mohawk Valley Cotton Mills

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Clow & Sons, James B.
Crane Company
Standard Sanitary Mfg. Company

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Blakiston's Son & Co., P.

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Clow & Sons, James B. ("Gasteam"—"Gas Water")

RANGES
Cleveland Range Company

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Burkhardt Co., The
Curran Printing Co., Con P.
Physician's Record Co.

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Dougherty & Sons, Inc., W. F.
Duparquet, Huot & Moneuse Co.
General Refrigeration Co.
McCray Refrigerator Sales Corp.
Pick-Barth Companies, Albert
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Van Range Company, John

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Bonded Floors Co., Inc.
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Wilson Rubber Company, The

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RUBBER SHEETING
Seamless Rubber Co.

RUBBER SHEETING AND TUBING
Archer Rubber Company
Betz Company, Frank S.
Dougherty & Co., H. D.
Fillman Co., John W.
Hospital Supply Company
Kaufman & Co., Henry L.
Lewis Mfg. Company
Johnson & Johnson
Mandel Brothers
Meinecke & Company
Rhoads & Company
Ross, Inc., Will
Stanley Supply Company
Thorner Brothers
Universal Hospital Supply Company
Wocher & Sons Co., Max

RUBBER TILE
Bonded Floors Co., Inc.
Stedman Products Company
Wright Rubber Products Co.

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Dougherty & Co., H. D.
Hospital Supply Company, The
Jarvis & Jarvis
Meinecke & Company

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Continental Chemical Corporation
Cowles Detergent Company, The
Vestal Chemical Company

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Patterson Screen Co.

SCRUBBING EQUIPMENT
Continental Chemical Corp.
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SERUM
Parke, Davis & Company
Squibb & Sons, E. R.

SHEETS
Baker Linen Co., H. W
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Pick-Barth Companies, Albert
Rhoads & Company
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SIGNALING SYSTEMS
Holtzer-Cabot Electric Company

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Dougherty & Sons, Inc., W. F.
Duparquet, Huot & Moneuse Co.
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Thorner Bros.

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Clay-Adams Company

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Continental Chemical Corporation
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Pick-Barth Companies, Albert
Procter & Gamble Co., The
Sexton & Company, John
Vestal Chemical Company

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Hillyard Chemical Company

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Becton, Dickinson & Company

SPICES
Gumpert Company, Inc., S.

SPUTUM CUPS
Hospital Supply Company
Johnson & Johnson
Meinecke & Company
Ross, Inc., Will
Stanley Supply Company
Thorner Brothers

STAIR TREADS
Alberene Stone Co.
Stedman Products Company

STARCH
Keever Starch Company
Sexton & Company, John

STEAM SUPPLIES
Clow & Sons, James B.

STERILIZERS
American Sterilizer Company
Betz Company, Frank S.
Hospital Supply Company
James B. Clow & Sons
Kny-Scheerer Corp. of America
Sargent & Co., E. H.
Scanlan-Morris Company
Stanley Supply Company
Thorner Brothers
Troy Laundry Machinery Company
Universal Hospital Supply Company
Wilmot Castle Company
Wocher & Sons Co., Max

STERILIZER CONTROLS
Diack, A. W
Hospital Supply Company

SUCTION PUMPS
Sorensen Co., Inc., C. M.

SURGEONS' GLOVES
Betz Company, Frank S.
Dougherty & Co., H. D
Hospital Supply Company
Kaufman Co., Henry L.
Mandel Brothers
Meinecke & Company
Seamless Rubber Co.
Stanley Supply Company
Thorner Brothers
Universal Hospital Supply Company
Wilson Rubber Company

SURGEONS' GOWNS
Betz Company, Frank S.
Hospital Supply Company
Mandel Brothers
Marvin Company, E. W.
Neitzel Mfg. Co., Inc.
Pick-Barth Companies, Albert
Rhoads & Company
Stanley Supply Company
Universal Hospital Supply Co.
Williams & Co., C. D.

SURGICAL INSTRUMENTS
Betz Company, Frank S.
Clark Company, A. M.
Grieshaber Mfg. Company
Hospital Import Company
Livezey Surgical Instrument Co.
Meinecke & Company
Hospital Supply Company

SURGICAL KNIVES
Bard-Parker Company, Inc.

SURGICAL SUNDRIES
Becton, Dickinson & Co.
Betz Company, Frank S.
Hospital Import Company
Hospital Supply Company
Meinecke & Company
Stanley Supply Company
Thorner Brothers
Universal Hospital Supply Company
Wocher & Sons Co., Max

SURGICAL SUPPLIES
Clark Company, A. M.
Zimmer Mfg. Company

SUTURES
Davis & Geck, Inc.
Hospital Supply Company
Meinecke & Company
Thorner Brothers

SYRINGES—NEEDLES
Johnson & Johnson
Medbridge Supply Company

TABLE TOPS
Stedman Products Company

TABLE TOPPING
Stedman Products Company

TEA
Calumet Tea & Coffee Company
Sexton & Co., John

TEMPERATURE REGULATION
Johnson Service Company

THERMOMETERS
Becton, Dickinson Company
Betz Company, Frank S.
Hospital Supply Company
Meinecke & Company
Ross, Inc., Will
Sargent & Co., E. H.
Stanley Supply Company
Thorner Brothers
Universal Hospital Supply Co.

THERAPEUTIC APPARATUS
National Carbon Co., Inc.

TOILET PAPER AND FIXTURES
Hillyard Chemical Company
Mandel Brothers
Pick-Barth Companies, Albert

TRAINING SCHOOL UNIFORMS
Neitzel Mfg. Co., Inc.

TRAYS AND TRAY-COVERS
The Hardware Specialties Mfg. Co.
Mandel Brothers
Meinecke & Company
Pick-Barth Companies, Albert
Rhoads & Company
Ross, Inc., Will
Sexton & Company, John
Thorner Brothers

TRUCKS
Jarvis & Jarvis

TUBERCULOSIS SUNDRIES
Johnson & Johnson
Ross, Inc., Will

TUMBLERS
Hazel-Atlas Glass Company

UNIFORMS
Morris & Co., Inc.
Neitzel Mfg. Co., Inc.

VACCINES-SERUMS
Parke, Davis & Company
Squibb & Sons, E. R.

VALVES—FITTINGS
Clow & Sons, James B.
Crane Company

VESTMENTS
Lohmann Co., The E. M.

WAGONS
Jarvis & Jarvis

WASHING MACHINERY
American Laundry Machinery Co.
Henrici Laundry Machinery Co
Troy Laundry Machinery Company

WASTE CHUTES
Metal Vitrix Company

WATER COOLING APPARATUS
York Ice Machinery Co.

WATER PROOF SHEETING
Seamless Rubber Company

WATER STERILIZERS
Clow & Sons, James B. (R. U. V.)
Hospital Supply Company, The

WATER SUPPLIES
Clow & Sons, James B.

WHEEL CHAIRS
Dougherty & Co., H. D.
Hospital Supply Company
Stanley Supply Company

WHOLESALE GROCERS
Sexton & Company, John

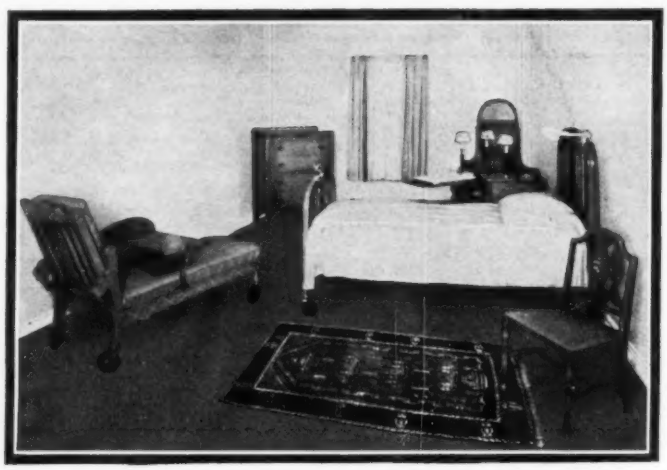
WINDOW SHADES
Draper Shade Company, L. O.
Mandel Brothers
Pick-Barth Companies, Albert

X-RAY APPARATUS
Acme International X-Ray Company
Brady Company, Geo. W.
Buck X-Ograph Company
Burdick Corp.
Doehren Co., Jno. V.
Kelley-Koett Mfg. Co., The
Kny-Scheerer Corp. of America
Liebel-Flarsheim Company
Livezey Surgical Instrument Co.
Victor X-Ray Corp.
Wappler Electric Company

X-RAY SPLINTS
De Puy Manufacturing Company
Zimmer Mfg. Co.

ADVERTISERS REFERENCE INDEX

Alberene Stone Company....36a
Aluminum Cooking Utensil Co....21a
American Commercial Alcohol Corp..8a
American Laundry Machinery Co....26a
American Sterilizer Co....3rd Cover
Applegate Chemical Company....Back of Gumpert Insert
Archer Rubber Co....22a
Arlington Chemical Co., The....24a
Aznoe's Central Registry for Nurses..94a
Baker Linen Co., H. W....27a
Bard-Parker Company, Inc....4a
Becton-Dickinson Company....66a
Betz Company, Frank S....65a
Blakiston's Son & Co., P....93a
Bonded Floors Company, Inc....31a
Boott Mills....86a
Brady Company, Geo. W....88a
Bruck's Nurses Outfitting Co., Inc....82a
Brunswick-Kroeschell Co....10a
Buck O-Ograph Company....Insert
Burdick Corporation, The....49a
Burkhardt Company, The....93a
Calumet Tea & Coffee Co....10a
Century Machine Company, The....18a
Chase Doll House, M. J....91a
Cincinnati Fly Screen Co., The....90a
Cincinnati Mfg. Co....90a
Clark Company, A. M....53a
Classified Wants Dept....92a
Cleveland Range Company, The....11a
Clow & Sons, James B....37a
Continental Chemical Corp....77a
Cowles Detergent Company....79a
Crane Co....44a
Curran Printing Co., Con. P....92a
Denver Chemical Mfg. Co., The....Insert
De Puy Manufacturing Co....59a
Deshell Laboratories, Inc....Insert
Diack, A. W....24a
Dix & Sons Corp., Henry A....74a
Doehren Co., Jno. V....88a
Dougherty & Co., H. D....84a
Dougherty & Sons, Inc., W. F....12a
Draper Shade Co., Luther O....86a
Duparquet, Huot & Moneuse....69a
Electric Dumbwaiters, Inc....12a
Fillman Co., Inc., John W....27a
Ford Co., The J. B....87a
Friedley-Voshardt Co....14a
General Laundry Machinery Co....72a
Glennon-Bielke Company....86a
Grieshaber Mfg. Company....88a
Gumpert Co., Inc., S....Insert
Hardware Specialties Mfg. Co., The..14a
Haslett Chute & Conveyor Co....20a
Hazel-Atlas Glass Co....17a
Heidbrink Co., The..Back of Sexton Insert
Henrici Laundry Machinery Co....20a
Hill-Rom Company, The....98a
Hillyard Chemical Company....57a
Hobart Mfg. Company....13a
Hoffmann-La Roche Chem. Wks., Inc. 7a
Holtzer-Cabot Electric Co....34a
Hospital Import Co..Back of Gumpert Insert
Hospital Supply Co., The....1a
Huntington Laboratories, Inc....38a
Hygienic Fibre Co....40a
Jacobs Brothers....67a
Jarvis & Jarvis....18a
Johns-Manville Corporation....55a
Johnson & Johnson....51a
Johnson Service Company....35a
Kansas City Oxygen Gas Co....24a
Karr Company, Charles....81a
Kaufman, Henry L....27a
Keever Starch Co., The....28a
Kelley-Koett Mfg. Co., The....50a
Kellogg Company, The....14a
Kewaunee Mfg. Co....89a
Klein & Brother, D....93a
Kny-Scheerer Corporation....6a
Lewis Manufacturing Co....4th Cover
Liebel-Flarsheim Company....54a
Livezey Surgical Service....56a
McCray Refrigerator Sales Corp....19a
Mallinckrodt Chemical Works....52a
Marvin Company, E. W....83a
Mateer & Company, F. W....22a
Medbridge Supply Co....16a
Meinecke & Company....30a
Merck & Co., Inc....16a
Metal Vitrix Company....47a
Midland Chemical Laboratories, Inc.. 2a
Morse-Boulter Destructor Co....22a
Mueller & Company, V....16a
National Carbon Co., Inc....63a
National Distilling Company....26a
Neitzel Mfg. Co., Inc....91a
Oakite Products, Inc....70a
Ohio Chemical & Mfg. Co., The....9a
Parke, Davis & Company....3a
Patterson Screen Co....25a
Physician's Record Co....90a
Physicians and Surgeons Adjusting Ass'n....93a
Pick-Barth Companies, Albert....23a
Potter Mfg. Corp....86a
Procter & Gamble Co., The....75a
Randles Mfg. Company....87a
Read Machinery Co., The....12a
Rhoads & Company....76a
Ross, Inc., Will..Back of Gumpert Insert
Royal Easy Chair Company....80a
Royal Uniform Co..Back of Gumpert Insert
Sani Products Company....73a
Sargent & Company, E. H....60a
Scanlan-Morris Company....2nd Cover
Schmidt Co., The C....20a
Scialytic Corporation of America....89a
Sexton & Company, John....Insert
Sharp & Dohme....6a
Simmons Company, The....91a
Smith's Sons Co., John E....10a
Smith & Davis Mfg. Company....90a
Sorensen Co., Inc., C. M....89a
Spencer Lens Company....89a
Squibb & Sons, E. R....5a
Standard Apparel Company....85a
Standard Gas Equipment Corp....43a
Standard Sanitary Mfg. Co....39a
Stanley Supply Co....67a
Stedman Products Co....45a
Stickley Bros. Co....87a
Storm, M.D., Katherine L....91a
Thorner Brothers....18a
Troy Laundry Machinery Co....71a
Union Bed & Spring Co....82a
Universal Hospital Supply Co....82a
Utica Steam & Mohawk Valley Cotton Mills....96a
Vestal Chemical Company....42a
Victor X-Ray Corporation....33a
Wappler Electric Co....41a
Wash Fabric Company....64a
Welch Manufacturing Co., W. M....62a
Westinghouse Electric & Mfg. Co....48a
White Dental Mfg. Co., S. S....46a
Williams & Co., C. D....78a
Wilson Rubber Co., The....88a
Wocher & Son Company, Max....26a
Wright Rubber Products Co....53a
York Ice Machinery Corp....15a
Zeiss, Carl, Inc....25a
Zimmer Mfg. Company....61a



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